

# AMERICAN BEE JOURNAL



February

1954

Vol. 94

No. 2



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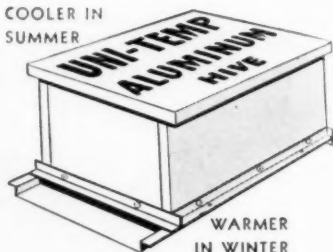
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# THE AMERICAN BEE JOURNAL

Vol. 94, No. 2

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February, 1954

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Joseph Tinsley, Rose Dene, Oakfields Road, Knebworth, Herts, England, provides this picture from the Sport and General Press Agency, Ltd., Fleet Street, London. It shows the National Honey Show in London. In flower and vegetable shows and in horticultural shows, and in annual honey shows, beekeepers compete, with excellent exhibits. The culmination is the one big National Honey Show in October. We have begun a National Show here, the first being at St. Paul last August, details of which are given by the Secretary, C. D. Floyd, in our November number.



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## S WE SEE IT

## EDITORIAL

### Shall We Go Up or Down?

Only one month of 1954 has passed, so most of the year lies ahead of us. What it holds in store for us will not be determined by a "magic wand" but by the way every beekeeper plans and carries out his course of action. We must never lose sight of the fact that a great many workers can do much more than a few. A colony of bees with tens of thousands of workers produces a crop of honey even though each brings in only a small amount of honey. The same holds true for the beekeepers; if each one does his part, the sum total will make 1954 a bright year for everyone.

The American Beekeeping Federation, composed of beekeepers from all sections of the country, has worked diligently to better the industry. The results obtained in the past few years have enabled each one of us to obtain a greater return from our labors. Whether these returns will decrease or whether they will increase will depend on the support given to the organization.

The American Honey Institute has most successfully promoted the use of honey on the American table and in cookery. Annually the Institute obtains free publicity for honey worth many hundreds of thousands of dollars. Literally millions of pieces of honey information and recipes are mailed all over the United States. Its work only is limited by the extent of support given.

We have two ways to go in our financial operations—up or down. Which shall it be? The choice is yours and mine. If we look at the matter intelligently, we will recognize that we have but one way. We must give our united support to the

organizations that are working for our best interests.

The support of the relatively few, as measured by the many thousands of beekeepers in the country, may keep our organizations alive just as a small colony of bees will exist, but are you content with such a colony? Similarly, a strong organization can do many things to benefit everyone when it is impossible for a weak organization. If we all will lend our whole-hearted support, 1954 will be a much happier and prosperous year.

### Canada Points the Way . . .

In Canada, with its cooperatives and packers behind marketing; with associations active also in marketing and advertising; with container levies for working capital; and an all-over Canadian Council that cements the common interests of all the beekeepers and all the marketing groups, Canadian honey is rapidly becoming a much sought after commodity. Prices are good; beekeepers are doing well. It is true that low crops and off grades do mar the beauty of this setup, but from our point of view in the States, Canada does not have our complicated marketing problem.

Although we have over ten times the people, and many and variable kinds of honey; and we have factions, and factions within factions; small beekeepers by multiple thousands and large ones widely scattered; disagreement and selfish interest; basically our problems here are the same and could be solved in the same way. Why not carefully study the Canadian setup and see what we can do?

### How Many Do? . . .

Mrs. Homer Tate of Starkville, Mississippi, about two years ago wrote that she was passing a copy of the Journal, with an article "Bees Go to School," by Mrs. Genevieve Robinson, to a teacher in the Starkville schools. She said, "I

think every beekeeper should contact the schools and carry to the children all the information he can on bees and their worth to agriculture. In this way we can stop advertising to ourselves."

Advertising to ourselves! Well, we do that don't we? How much do we advertise to others? Put it all together and how much advertising does it amount to? Let's sell what we have to others, not only through the schools but through our local groups—church, service clubs, chamber of commerce, association groups, farm organizations. Don't say "buy my honey" or "use my bees" but stress food values, crop increase, basic things. Above all, as Frank Pellett used to say, remember that the honey bee is "The Spark Plug of Agriculture." And honey is a "Food for Health."

### So, That's the Reason . . .

It is pitiful to listen to the reasons beekeepers often give to explain why they do not support either the Federation or the Institute. The most frequent reason is that they just simply cannot afford it!

To offset the argument is easy. Most admit that their honey moves to the buyer readily at good prices; most admit that the store or other retail outlet takes their honey at good prices with little persuasion; most admit that the volume of sale is now well distributed through the year and does not bulk up in one period in a competitive race; most agree that there has never been so much pay-off publicity about honey as there is today.

Now, we have them in a pinch. How can they afford not to help out in the financial support that will allow the organizations that have brought about all this improvement to continue to bring greater improvements as time passes? How can they let the goose with the golden egg die on the nest because they take the reward of its laying and so deny themselves the privilege and the satisfaction of being a part of their own business?



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| 3-lb. pkg. with queen | 3.15   |
| 4-lb. pkg. with queen | 3.90   |
| 5-lb. pkg. with queen | 4.75   |

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certificate furnished with each ship-  
ment.

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|           |        |        |        |
|-----------|--------|--------|--------|
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| 2-lb. w/q | \$3.00 | \$2.90 | \$2.85 |
| 3-lb. w/q | 3.90   | 3.80   | 3.75   |
| 4-lb. w/q | 4.85   | 4.75   | 4.65   |
| Queens    | 1.00   | .95    | .90    |

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in universal favor. Use Jensen reared queens and  
cut supersedure losses to the minimum.



### "Magnolia State" Dark Italians and Dadant's "Starline" Hybrids

|          | Queens | 2-lb. Pkgs. W/Qs. | 3-lb. Pkgs. W/Qs. |
|----------|--------|-------------------|-------------------|
| 1-24     | \$1.25 | \$3.75            | \$4.75            |
| 25-99    | 1.15   | 3.50              | 4.50              |
| 100-999  | 1.05   | 3.25              | 4.25              |
| 1,000-up | 1.00   |                   |                   |

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All Hybrid Queens clipped and marked. Italians on request only.

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## ALL AROUND THE BEE YARD

G. H. CALE

Last month, some readers, who looked over "Contents" to note what might be in the magazine, likely found this page figured to be on page 8. Turning to page 8, the entire space was advertising. What happened? The first forms are printed before the rest and contain most of the reading pages; the second forms, with most of the advertising, are then printed. In the interval, advertising had so increased that there was no room for some of it except by using the space which had been listed in about half the papers for All Around the Bee Yard. Maybe some of you tried developer for invisible ink and concluded the whole thing was a hoax. Nice to be an editor.

Bees had flights frequently through January and the clusters were high on the combs, often way up entirely over the combs of solid honey. Then, when colder spells came, the bees went down to the lower edge of the honey. This is good, as they are then constantly near stores. A sudden drop in temperature, though, might catch the cluster too scattered and isolated groups of bees, between combs, might then be lost. So far this has not happened.

Spring may find many colonies low in stores even those that seemed to have abundance in fall. We'd better check, in this country, in late March; certainly by early April. Colonies often appear to have enough honey for their use for ten days or so and feeding is postponed for that length of time. This often costs us dearly because, approaching the time when stores will no longer be enough, many colonies will conserve what they have and the queens will reduce laying so that brood areas are actually cut down long before

the stores are gone. Better feed all colonies that are on the light side, even though they may not seem to need it immediately. If you give them sirup, give them dry sugar too. If you use a drip feeder, like a honey pail, have only a single nail hole (about a tenpenny) in the center of the lid. The sirup drips more slowly and the bees use it only as they need it. If several holes are used the sirup comes out faster than needed and even though stored in the comb, some is wasted.

All of us know that old brood combs gradually develop imperfections that, in time, make them less desirable combs than they were in the first years of use. Lately, I had a part in the sorting of 1200 combs that had been in use for varying periods. Some I know were twenty years old; some not over ten years old. About 50% of them were tough, drone patched, skin filled patriarchs. They should have landed in the melting pot. By necessity many of the less poor ones had to be used again.

Practice should be to have a program of annual renewal. Each flow should be used to have new brood combs drawn out. Each fall the combs from the older hives should be sorted and some replacement made. Try to develop a rotation so a percentage of the hives are not with wintering colonies but are in the house to be revamped. Then, too, it is quite likely that the poor areas in combs long in use interfere with brood development and so our colonies in spring won't rise to their peak as rapidly as those that have combs without interruption for egg laying. Most good queens, with fine combs, will turn out an unbelievable number of bees for the honeyflow.

Speaking of combs, some feel sure that old super combs, that are brown or dark in color, indicating that brood has developed in them at times, darken honey and so they feel that the super combs should be kept entirely free of brood, by ex-

cluders if necessary, or by using the winter food chamber between brood nest and storage supers. It would take experiment to determine the extent of darkening caused in honey stored in combs in which brood has been repeatedly reared. We have taken honey from white combs and from brown combs, bottled the honey and found little, if any, difference in color. Old, thick, black combs are different. They do darken honey. Better keep them in use in the food chambers or discard them.

It makes us feel quite small to learn that most of us, like sheep following the leader, tend to take accustomed thinking for established fact. One of the worst traits of those who do research is to decide from accustomed thinking or some form of ancestral worship that the results of their findings must, somehow, conform to what has been believed.

One of our favorite beliefs is that virgins mate with drones nearby. If we have the right drones around mating yards and not far from the queen nucs, we have the right setup for the proper control of natural mating.

There is quite a bit of evidence to show that this is entirely wrong; that virgins seek drones and not, as we have thought, that the drones seek the virgins. It now seems certain that most virgins fly some distance for their mating and that they mate several times before they are satisfied and laying begins. How much mixed inheritance results from this would be hard to determine but maybe we should have our selected drone colonies at a distance rather than close by. If the virgins fly about in several directions maybe we should encircle their flight circumference with our drones. This would establish a brand new procedure and matings might be so well controlled that we would get rid of or reduce the variations that so often appear in queens we think have mated with their friendly flight brothers.



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# Panel for February

## How to Manage Package Bees

### Panel Members

#### Dr. C. L. Farrar

North Central States Bee Laboratory, University of Wisconsin. Farrar's work with the technique of package management and the problems of package bee variation and behavior have helped beekeepers considerably.

#### R. W. Cameron

Member of the firm of Synott and Cameron, Lena, South Carolina, and quantity user of packages at Spooner and Baudette, Minnesota. It's tough country for package development and troubles never come singly this far north.

#### F. B. Paddock

As Extension Apiarist for Iowa, Paddock has seen packages in numerous apiaries, season after season. He is a good analyzer of management troubles whom most Iowans follow each year. With bees of his own he knows the problems.

#### Henry W. Hansen

Twelve hundred colony beekeeper of Dakota City, Iowa. His is an all package bee outfit in a region where most beekeepers overwinter bees. He produces crops that rival any in the state.

#### Joseph O. Moffett

As a field man out of the Colorado Experiment Station, Joe faces most of the problems with package bees in a cold country in high elevation. The problems are more severe than in many other places.

#### Myron R. Frisvold

In Green Bay, Wisconsin, Myron has an all out package bee outfit. Some of his crops are phenomenal. Skilled management does it. He has a small outfit, about 350 colonies, but he outproduces bigger ones.

#### E. Braun

Ed is a researcher but he stays with practical management and his constant observation of package management in Manitoba and Ontario gives him a good insight into what to do. He is in the Bee Division of the Experimental Farms Service in Ottawa.

We are proud of the panel this month. Each member of the panel is a man who has either made a close study of package bees, and what to do with them or has used and handled hundreds or thousands of them.

As announced in January, unlike the "Round-Ups" in 1952 and the "Spotlights" in 1953, the 1954 Panels are summarizations of the contributions of the panel members to a single subject in a basically practical manner.

Presumably the first consideration in this panel about package bees is whether or not we should buy packages. To arrive at a decision, estimate the usual loss to be expected from any cause which may enter the picture from the end of the previous season to the beginning of the coming one. Be frank and admit if you have losses from starvation or queenlessness, or colonies that appear in spring with poor queens or colonies that have been lost through disease or from close fall inspection and uniting to prevent the wintering of undesirable individual colonies.

This, plus any increase that you may wish to make, will give you a base from which to figure. If it is possible for you to make a certain number of divisions or shake out a certain number of packages from your own outfit, that will minimize the number of packages you buy. A ten to twenty per cent "home-made" replacement is about the average expectancy. By subtracting this from the total you need, the actual number of packages which you must buy can easily be determined.

In some areas, with relatively short seasons, it is often impractical

to make increase from overwintered colonies. Some commercial beekeepers in large producing areas may take colonies to the South, to Texas or California, under permit, in winter and even in early spring, to make enough increase to replace normal losses and bring their bees back so that they can be installed and expanded into colonies in time for the honeyflow. However, this practice in many sections of the country is perhaps not advisable.

The second consideration will likely be how to secure the packages? What sort of a package to get? Where to get it? How to have it reach you with the least loss?

A two-pound package of bees for most users seems to be as satisfactory from the standpoint of handling and production as a larger package. Some believe that a three-pound package is better than a two-pound package but from the standpoint of cost and production and handling in most places, the two-pound package is large enough.

There is a big variation in the growth of packages and the crop obtained, according to the value of the queens and the age of bees that accompany the package. A package with young bees sustains its population longer than when the bees are older. Obviously the variation in the behavior of queens will be noticeable according to the skill which has been used by the breeder in producing his stock and in selecting for satisfactory brood development and laying ability of the queens. Experience in buying from various breeders should easily establish the most satisfactory sources from which to get the packages.

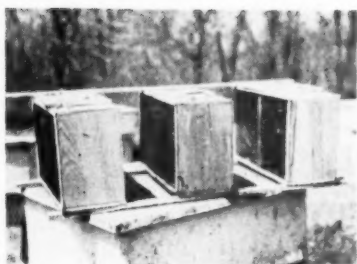
Firm orders should be placed with the breeder well in advance and

#### Henry A. Schaefer

A 1200 colony beekeeper at Osseo, Wisconsin (currently President of the American Beekeeping Federation). He severely reduces each fall, wintering the best, replacing in spring.

#### John F. Long

As Chief Apiary Inspector of Wisconsin, at Madison, John has run into more variations and disease complexes than most of us. His bouts with Nosema have been especially tough.



Packages come in straps of three usually. Strap laths are removed in the yard and packages distributed by the hives.



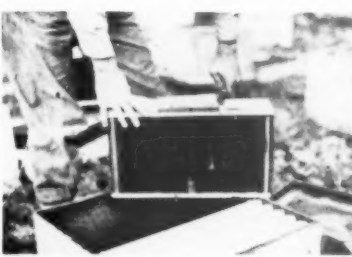
Feed pails (feed, half sugar-half water) are set by the packages and hive entrance plugged lightly with green grass.



Use a half set of combs (or a full set if you prefer). Separate combs as shown. Spray caged bees with water.



Shake wet bees to cage bottom. Bees should be thoroughly wet to reduce any flight to a minimum for some time.



Take off the closing block over filler hole on cage top. Package feed can is right under the block.



Pry out the feed can and lay cover block back on loosely. Feed left in can may be set over bees after hiving.

there is no necessity for changing the order to suit variations in spring weather. The shipper should be sure to notify the buyer of the exact shipping date and the packages should be accompanied by a certificate of inspection which shows the date of the last inspection before shipment to safeguard against disease.

Packages may be installed almost any time after spring has arrived. The period of time necessary for the package to develop into a full colony will vary but it is best to allow at least eight to twelve weeks for full development.

If there are any losses in shipment, they should be reported at once on receipt of the packages and not delayed until a later date when evidence cannot be given for the losses sustained. Express companies are glad to sign bad order or loss statement on arrival and they will not do so later. Also there is always the suspicion on the part of the breeder that the buyer has in some way misrepresented when reports are made after too much time has elapsed from the date of receipt.

One of the difficulties with package bees is the unevenness of build-up in different seasons. Some years they build up well. Some years they build up slowly. Cool nights tend to chill brood or restrict brood rearing. In colder locations, and this is particularly true in Colorado, according to Moffett, beekeepers may hive

their packages as nuclei on strong colonies, separated by a double screen. The top unit should have a back entrance to prevent bees from the two parts intermixing.

Surplus queens should be ordered with the shipment so if any of the queens sent with the package prove to be poor, they can be quickly replaced. It is important to make sure, as the packages develop, that queens are satisfactory. Loss of queens in introduction and superseding of queens for no apparent reason are perhaps two of the main problems with package bees.

Surplus queens may be stored over double queen excluders in a shallow super with the screens of the queen cages turned down toward the excluder and they will store this way for a period of weeks. Losses or failure of queens can readily be corrected if the queens arrive about a week after packages are installed. According to Dr. Farrar, experience shows that from ten to twenty per cent additional queens should either be established in top reservoirs as indicated or in nuclei. A two-pound package with three queens will provide three nuclei by distributing the bees equally between the queens. Then these nuclei can be used for replacement.

Probably a good statement of essentials for package colony development are productive queens, a normal population of young healthy

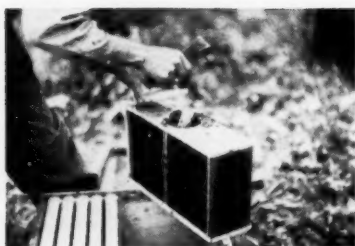
bees, an abundant supply of pollen and honey, good combs in quantity, freedom from disease and eight to twelve weeks for the colony to reach full productive strength.

Two-pound packages are quite satisfactory when the bees are to be hived on combs of pollen and honey; and perhaps the three-pound package is best for those who have to establish bees on foundation. Those on foundation must be fed continuously until the foundation is drawn into combs.

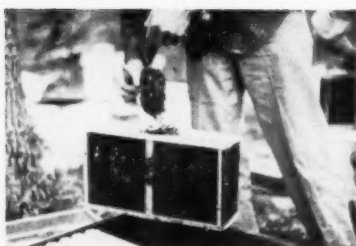
It should also be mentioned that any combs that have been stored and which have been protected against the ravages of the bee moth with the use of a moth control chemical should be allowed thoroughly to air before being used or the fumes will kill the adult bees.

Package bees, free from Nosema disease which may kill off the adult bees, hived on combs free from American foulbrood or European foulbrood should not be disturbed by any disease problems. However, the presence of Nosema in the adult bees of overwintered colonies, even in some of the package shipping regions, is often the cause of excessive population loss in packages hived in the North. Bees hived on combs which are thought to be free from disease often later show disease so the combs actually did harbor the organisms of either Ameri-





Lift cover block and take out queen cage. Shake cage as you do to dislodge bees. Bees cling to cage (see next picture).



Shake bees off the queen cage and slip cover block back over hole. Direct introduction is preferable to allowing bees to release queen.



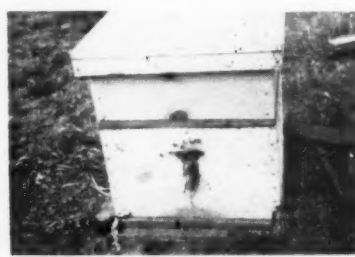
Pry off queen cage end-cover on end without candy. Hold thumb over hole. Slip cage under two side combs and remove thumb.



Shake in quite a lot of bees at once to be with the queen as she comes out. Leave balance of bees in the cage with hole open.



Set cage in hive on two blocks to raise bottom from hive floor. Note grass plug. Bees have no flight till plug dries and is pushed out.



The job is done; hive closed; feed inside and here bees are working out through grass plug. Install in cool day or near dusk.

can or European foulbrood.

To overcome this situation, the use of antibiotics has developed. This year for the first time fumagillin (see pages 52 and 55) is being offered for both the northern package user and the southern package producer to overcome *Nosema* which is often the cause of excessive loss of adult bees. The use of sulfathiazole in the feed of packages in the control of American and the use of terramycin dust for the subsequent control of European which may develop in the brood is a recommended procedure.

When bees are received in good condition, the usual practice is to hive them as soon as possible. However, there is some indication that storing them in a cool dark place, feeding them two or three times with a thin sirup is an advantage since the bees become quiet, are stimulated to wax production, and the queens enlarge and frequently begin egg laying in the small amounts of comb that the bees produce in the cages. The details of installation are given in a series of pictures accompanying this panel.

More packages fail to develop properly because of insufficient feed than for any other reason. Few appreciate the amount of food a package colony needs to build up its population and to maintain its brood

rearing temperatures constantly so that brood will develop without recessions. Food consumption, just for heat, is heavy in March, April and May, much more so than is the heat production needed for the colony in December, January or February.

It must be remembered, too, that a full colony of bees has more resources of pollen and honey than is usually supplied to the package. The package must have at least one comb of honey at the time of installation if possible and also a 10 pound pail of feed. Even with this amount the package must forage from the field to get more. It is hard for the package to put many bees into the field because the package does not have the population to carry the load of brood rearing and, at the same time, go into the field for stores. It is also probable that some of the supersedure of queens in package colonies is a reflection from low food supply.

Provide as much honey as you can and, as feed becomes low, give at least 10 pounds of sirup at a time to the colony during the build-up period to assure a rapid production of brood.

All things considered, probably a supply of stored honey is better than sirup but the honey is not always available. Supplying the honey eliminates robbing and queen trouble and interruptions in brood rearing.

Honey, off-grade honey or honey from the capping melter or from melting up old combs, can be used when diluted about one-third and probably is a more satisfactory feed. But it should be fortified with sulfa to prevent American and by the application of terramycin dust to the developing brood to prevent European.

Particular attention should be given to the food available to the colonies in the period between fruit bloom and dandelion and between dandelion and the main honeyflow from clovers because a dearth of nectar and pollen for a two-week period may cause a recession in brood rearing and affect the colony yield later. Actually the developing package colony should have more honey and pollen than it can use rather than less, particularly when there is no chance of honey being obtained from light flows in the fields.

When queens are satisfactory, no disease present and there is an abundance of food (both honey and pollen) the expanding colony will rapidly reach a point when it has to be furnished with more room.

Usually the package is started on a set of combs in one body and allowed to develop as rapidly as conditions permit. If a sufficient period of time is not available for the de-

(Turn to page 73)





Photo from Harry Laidlaw—Top flight geneticists, who are working to breed new bees, fit for anything, anywhere. Left to right, Walter Rothenbuhler, Ames, Iowa; Dr. Harry Laidlaw, University of California; Dr. Otto Mackensen, U.S.D.A., University of Louisiana; G. H. Gale, Jr., Starline breeder for Dadant & Sons; and Dr. Will Roberts, U.S.D.A., University of Wisconsin.



Photo from Ralph Mills, Visual Aids, Raleigh, N. C.—A smoker contest at a North Carolina meeting. Looks like the gentleman at the right really has a smudge going ahead of competitors. It's lots of fun. Each contestant provides his own smoker and his own favorite fuel and uses his own way of lighting up. Often some tyro will badly beat the old timers. Contests are the life of the party.



Photo from Mark C. Olson, Spokane, Washington.—Looks as though a bear had been at work. But some small boys did the damage. Either they do not like bees or they wanted to see what would happen. There should be some way to educate kids that this is an expensive sport and a blow to the beekeeper. If the boys could have helped restore the damage one lesson would be enough.



Photo from the Providence Sunday Journal, John W. Hawkins.—The Journal issue of May 31, tells a story of sixth grade pupils at Windmill St. School whose project was honey bees. Here Mary Shakel and Roberta Corso finish a mural of a typical apiary scene. During the project other regular class subjects are grouped around the project.



(lower left)

ABJ portrait file photo—George Rea, Reynoldsville, Pa., began his career as an extension beekeeper in North Carolina, New York, Pennsylvania and elsewhere for the United States Department of Agriculture and also for State Departments. He has probably made a greater impression on American beekeeping than any other man in a similar position. Now, with his 23rd car, George has travelled over 1,500,000 miles. He became one of the folks whom he served.

(lower right)

Photo from F. Q. Bunch, Welch, Minnesota—Snapshot of a bee tree, with bees and comb bulging out of the tree. This is a very unusual picture. It shows a huge colony with quite regular, almost perfect, new combs. If the stores are abundant in the tops of the combs it is quite possible that such a colony could withstand winter, even with above normal losses, and do well the next season.



# Fumagillin for Nosema Control in Package Bees

by C. L. Farrar

Entomology Research Branch, Agricultural Research Service, U.S.D.A.<sup>1</sup>



**N**OSEMA disease is the greatest single deterrent to the development of productive colonies from package bees. The disease causes more conspicuous losses in package colonies than in others because packages are started with small populations and have no young bees emerging for a period of 3 weeks.

There is no evidence that Nosema has become a problem because of package bees, but package bees present major problems because of Nosema. This protozoan organism is world-wide in distribution and restricts the production of all classes of colonies.

Nosema disease shortens the life of bees without producing behavior or mortality symptoms easily recognized under field conditions. Crawling bees are symptomatic of Nosema infections only during the first few days of a heavy honeyflow. Prior to a flow more severe infections frequently occur without the bees showing abnormal symptoms. The heavily infected colonies, however, usually have less brood and show a subnormal rate of build-up.

The author has discussed the effects of Nosema in previous papers and suggested management practices that can be employed to minimize Nosema losses by both producers and users of package bees. The effectiveness of these practices may be greatly increased by the use of a new antibiotic.

## Experiments with Fumagillin for Control of Nosema

Preliminary tests by Katznelson and Jamieson<sup>2</sup> showed that a new amoebicidal antibiotic, fumagillin, prevented the development of Nosema in caged bees. In the fall of 1951, shortly after Dr. Jamieson visited the laboratory and told of their experiments with fumagillin, we verified their results with a 2-gram

sample supplied by the Upjohn's Laboratories.

In February 1952, in cooperation with the Abbott Laboratories, tests were undertaken to measure the therapeutic value of fumagillin, first with caged bees and later in the season with packages that had been inoculated with Nosema. All the results justified the conclusion that fumagillin might be used effectively for the control of Nosema. Fumagillin has proved to be a good therapeutic agent and nontoxic at the required concentration. Treated inoculated bees lived about as long as uninoculated controls and much longer than those inoculated but not treated. Furthermore, the antibiotic could be administered by common feeding practices employed in beekeeping.

The economic importance of the Nosema problem in the production and use of package bees stimulated large-scale practical tests based on these laboratory results. In the spring of 1953, 2340 packages were made available for fumagillin tests by commercial beekeepers—four in Wisconsin, one in Iowa, and two in Minnesota. Much of the field work was done by Howard E. Cmejla<sup>3</sup> and Don F. Peer, research assistants at the University of Wisconsin; R. J. Walstrom, extension entomologist, Iowa State College; and T. A. Gochnauer, research associate (bacteriologist for bee diseases), University of Minnesota.

One package producer in Louisiana supplied 520 packages purchased by the Iowa cooperator for testing three treatments in eight combinations. Otto Mackensen, E. Oertel, and Stephen Taber of the Baton Rouge laboratory, and Wm. C. Roberts of the Madison laboratory assisted him in the preparation of these packages, grouping the eight test lots and taking the necessary records and samples. One producer in Texas and one in Alabama added fumagillin to the

sirup in some of their packages purchased by the northern cooperators.

Diagnoses of samples taken from the packages at the point of origin or on arrival and from the colonies 3 weeks later were made at Madison, except for those samples from 425 packages tested in Minnesota, which were diagnosed by Dr. Gochnauer. The author coordinated the project and assisted in the field work in all three states. John F. Long, C. D. Floyd, and F. B. Paddock, state apiarists of Wisconsin, Minnesota, and Iowa, respectively, rendered valuable assistance.

The cooperating beekeepers not only purchased the bees and the sirup fed but gave generously of their time and kept records beneficial to the success of the project. The Abbott Laboratories supplied the fumagillin and other special items, and assayed the sampled lots of sirup to which fumagillin was added.

The brief summary of these experiments is presented here so that those producing or purchasing package bees may have immediate opportunity for reducing the economic losses from Nosema disease. A full report of the experimental data will be presented later in a technical publication.

Normal food—honey and pollen in the comb—was supplied all packages by the cooperators. Approximately 10 pounds of fumagillin sirup was fed to half the packages under test.

<sup>1</sup>In cooperation with the University of Wisconsin Agricultural Experiment Station and informal cooperation with the Iowa and Minnesota Agricultural Experiment Stations.

<sup>2</sup>Katznelson, H., and Jamieson, C. A., 1952. Control of Nosema disease of honey bees with fumagillin. *Science* 115 (2977): 70-71.

<sup>3</sup>Supported in part by the University of Wisconsin Research Committee from funds supplied by the Wisconsin Alumni Research Foundation.

A solution of fumagillin in ethyl alcohol was added to sugar or honey sirup to provide 50 mg. of fumagillin per liter. Most of the treated packages received 172 mg. of fumagillin; there were a few exceptions where less sirup was fed. One cooperator who fed honey sirup added sulfathiazole as a preventive against American foulbrood. The sulfathiazole did not change the activity of fumagillin against Nosema.

About 30 percent of the untreated packages received the same amount of sirup without fumagillin. All colonies were provided adequate reserve stores in the comb, and those fed sirup showed no effect of stimulation over those not fed. The sirup was supplied from pails or division-board feeders. A few colonies failed to take the sirup, either because the holes in feeder pails were clogged or because the cluster located on the opposite side of the hive from the division-board feeder.

The results of these tests are shown in table 1. The data are based on the diagnosis of mass samples of 15 to 20 bees taken from 1961 packages and from their respective colonies before the emergence of new bees 3 weeks later.

The level of infection in the untreated colonies increased in 3 weeks from 27.5 to 72.8 percent but decreased from 23.5 to 17.9 percent in those treated. Of the untreated colonies 51.2 percent were medium to heavily infected, compared with only 2.3 percent among those treated. The infection in the treated colonies may be due to the bees' failure to take the sirup.

Shipments from 11 sources sup-

plied the bees for 39 test apiaries. The packages tested in Iowa and Minnesota were received by truck, the others by express and parcel post. The Iowa packages were divided into 8 groups of 65, each group having been shaken from colonies in a different apiary. No information is available on the number of apiaries supplying the 425 packages used in Minnesota. Presumably each shipment received in Wisconsin was shaken from a different apiary. Table 2 gives evidence why different shipments from the same commercial source vary in their ability to develop productive colonies.

Fifty percent of the queens used in the packages tested in Iowa were produced in nuclei fed fumagillin sirup. Samples of bees were taken from 25 treated and 25 untreated nuclei when the queens were removed. No infection was found in samples from treated nuclei, but there was 87 percent infection from the untreated, 43 percent being heavily infected. It was reported that the treated nuclei maintained normal queen production, but that many of those untreated had to be restocked with bees.

The majority of package queens lost after the packages were installed were not found for diagnosis. Twenty-seven Nosema-infected queens were recovered from all the test yards, but only one infected queen came from a treated colony and none of the 27 were produced in treated nuclei.

Packages shipped with fumagillin added to the sirup showed a slight advantage over those shipped with untreated sirup. This short treat-

ment of 3 to 5 days during shipment was inadequate when the package colonies were not fed fumagillin after arrival. All laboratory tests indicate that prolonged feeding of fumagillin is necessary for Nosema control. Sufficient treated sirup is needed to supply the colony's principal food requirements for at least 3 weeks, or until there is a rapid emergence of young bees.

Production gains resulting from treatment are not easily determined in commercial apiaries. Most of the cooperators followed the acceptable beekeeping practice of rebuilding inferior colonies by adding brood and bees from stronger colonies. According to one cooperator, "there was undeniable evidence that the yards included in the experiment were far ahead in honey production per colony over those not included. I would say that the average of those 13 yards against the average of the other 35 was better by 25 to 30 percent." Since only half the colonies in the experimental yards were fed fumagillin, the advantage indicated may be considered conservative. All 48 yards had 40 colonies established with packages from the same source.

Three cooperators submitted production records or statements indicating an average of approximately 30 pounds in favor of the treated colonies. One cooperator reported no difference, except in one yard where the initial infection was the heaviest of all test lots. He thought that the treated colonies in this yard might have shown 25 to 30 percent greater production during the clover flow. One cooperator reported that the untreated colonies produced more than the treated, but explained that drifting in the yard where the colonies were established, differences in honeyflows at locations to which the colonies were moved, and European foulbrood infections made it impossible to draw any safe conclusion.

All cooperators but one were impressed by the difference in initial build-up between the treated and untreated colonies, and they thought fewer queens were lost in the treated ones. These impressions furnished by the cooperators appear significant because they agree so well with the diagnostic data.

#### Recommendations for the Use of Fumagillin

The most effective point of attack on Nosema with fumagillin seems to be the colonies from which package bees are shaken.

(Turn to page 60)

Table 1.—Incidence of Nosema infection in package colonies treated with fumagillin and in untreated colonies.

| Level of infection | No fumagillin<br>(Per cent of 992 packages) |                | Fumagillin<br>(Per cent of 969 packages) |                |
|--------------------|---|----------------|--|----------------|
|                    | Initial samples                             | 3-week samples | Initial samples                          | 3-week samples |
| Negative           | 72.5  | 27.2           | 76.5                                     | 82.1           |
| Light              | 17.7  | 21.6           | 16.9                                     | 15.7           |
| Medium             | 8.5   | 24.7           | 5.0                                      | 1.7            |
| Heavy              | 1.2   | 26.5           | 1.6                                      | 0.6            |
| Total infected     | 27.5  | 72.8           | 23.5                                     | 17.9           |

Table 2.—Infection in initial samples taken from package shipments.

| Source | Per cent of samples showing infection |       |       |       |       |       |       |       |
|--------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|        | Lot 1                                 | Lot 2 | Lot 3 | Lot 4 | Lot 5 | Lot 6 | Lot 7 | Lot 8 |
| 1      | 6                                     | 15    | 17    | 28    | 29    | 40    | 52    | 55    |
| 2      | 8                                     | 9     | 27    | 30    | 41    | 49    | 60    | 83    |
| 3      | 2                                     | 7     | 13    | 16    | 17    | 22    | 38    |       |
| 4      | 12                                    | 18    | 27    |       |       |       |       |       |
| 5      | 18                                    | 35    |       |       |       |       |       |       |
| 6      | 22                                    | 27    | 37    | 43    | 62    | 89    |       |       |





# "A Little Child Shall Lead Them"

by Edward A. Wolfe

**N**OW, don't get excited—we aren't going to deliver a sermon. But, the Nebraska Honey Queens would like to point out that as these words apply to other phases of our lives, so do they apply with equal force to the future of our own industry.

It is a peculiar thing that we of the beekeeping industry are so positive about the value of honey as a food for children; we use the fanciest of superlatives in our editorials (directed largely to the beekeepers); we feature Bobby or Betty with a jar of honey and a slice of bread in much of our advertising—but we blithely ignore the fact that Mother does the shopping. It probably is true enough that many if not most children like honey, but it is equally true that they like a host of things. For example, it is no particular compliment to us that the average family spends more for bubble gum than they do for honey even though few would care to argue the merits of the two products.

Say what you will, the bare fact remains that advertising is aimed primarily at what people want—not at what they need or should have. Little is said about the fundamental parts of a new automobile; the gadgets do the selling job. We have yet to see an ad which claims that cigarettes make you feel better. Old Crow and Four Roses claim little more than their having been aged in wood. Yet, these and many other products are presented to the buying public in such a way as to make them a necessity to our way of life, and most successfully so.

Unfortunately, most of our efforts to present honey to the consuming public have been pathetically weak. This is particularly unfortunate since some packers and individuals have made a genuine effort to present honey favorably, but these few are in a decided minority.



## NEBRASKA HONEY QUEENS

At top, Penny Wyman, Shelton  
Below, Marilyn Baynes, Hershey

In spite of the efforts of these few; in spite of the efforts of industry organizations; the truth remains that capita consumption has remained at approximately the same level for the past quarter century. Perhaps credit should be given to these efforts for keeping the level of consumption from sinking to an even lower figure.

During the past decades we have heard and read much about the value of advertising. Some are so firmly convinced of the magic of the word that they believe one high-powered ad in a nationally known magazine would solve our marketing problems. Others are hopeful that free government promotion is an easy and cheap way out. Others are just waiting to see what "they" are going to do about things. There is no particular objection to advertising at high levels—it doubtless has value. But, such promotion can never be completely successful as long as we, at the ground level, do nothing—and don't pretend that sending an occasional check to an industry organization relieves you of further responsibility. We could put on a wonderful promotional program at high levels—for considerable sums of money—which we haven't. We can put on a wonderful promotional program at low levels—for modest sums—which we have.

Many of us have become quite eloquent in describing our economic conditions, but actually, our paucity lies in concerted action rather than greenbacks. Just for the fun of it, count your own virtues. Do you make a real effort to present honey in your own locality? Do you display honey at city, county, or state exhibitions? Do you make an honest effort to improve the market for honey in your immediate area? Do you consistently support state and national industry organizations? It would seem that everyone could answer "Yes" to all four questions and yet the truth is that if you can answer in the affirmative to more than one of them, you are an exception.

American Bee Journal

There are probably countless market improvements that could be effectively made at very little cost. A program of trial and elimination could develop types of home level promotion that would ease and perhaps even solve our marketing problems. The Nebraska Honeys don't pretend that they have the answer, but we think it is a real possibility. They don't pretend the idea is new, but it is new to us. It involves a little cash; a little planning; and a little cooperation. Cooperation in this case is between the honey producers; leaders of 4-H groups; the Nebraska Honeys; and the Nebraska Honey Producers Association. The plan is simple—and workable.

Progressive beekeepers in the various counties sponsor a baking contest for 4-H girls who use uniform recipes specifying honey as one of the ingredients. County home agents distribute rules, recipes, and honey to the interested girls. The Nebraska Honeys promote the contests, select the recipes to be used, and assist in all ways possible, and the state association furnishes moral and sometimes financial support. The bake products of these girls are exhibited at county fairs; judging is conducted on a point basis; and the over-all winner is declared the Honey Queen who will receive her crown and special cash award during the 4-H festivities of the fair.

Are the girls interested in this type of work? Over 30 girls entered the contest in one small fair; there were 76 exhibits in another. It is interesting to note that in one case a 12-year-old boy entered an exhibit, won a blue ribbon, and demanded that he be crowned the Honey King. Why are these girls interested? The special cash award of course interests some; the possibility of being Honey Queen attracts others; but the majority expressed the thought that this work was something different—something new.

The effort would be worth-while if it ended there—but it doesn't. These contests have many significant aspects. First, let's consider the girls. They are learning things about honey that they never knew existed—they are finding excellent recipes some of which will find their way to their permanent files a few years hence when these girls have charge of their own homes and families. Because of these contests, honey has found its way to many homes where it has seldom been used before. How do we know? Many mothers expressed surprise when they learned

that honey could be used in so many ways—used in ways so simple and satisfactory that their own daughters turned out products of superb quality. Further, this discovery was passed on to relatives and neighbors. A gratifying number of mothers told us they are now using honey regularly where they seldom used it before. Are the girls interested in continuing this work? Talk to them for your answer. Better yet, talk to the girls who didn't enter in the work this year, or didn't know about it. The answer is a most definite "Yes!" Inquiries are already coming to the officers of the Nebraska Honeys for assistance in setting up contests in other counties next year. There is talk about making the contests statewide with the county Honey Queens competing at the State Fair for the honor of being the state Honey Queen. There are some who suggest the ambitious plan of having these county winners compete at a public baking exhibition.

Is the resulting publicity favorable for the sale of honey? Ask your neighborhood grocers following such events. Publicity—favorable publicity—comes by the superful. It starts in the early summer when these girls first start using honey—it starts at the home level—in the kitchens of their homes and their friends. It carries on at a broader level at the county fairs where thousands of people see not only honey but the things that can be made with it. These baked exhibits hit the observer with special significance. In most exhibits of baked foods, those seeing the display consider the exhibitors to be something of specialists and the products beyond the grasp of the average housewife. In the case of the honey products displayed by the girls, the housewives are brought

forcibly to recognize that if such excellent products can be turned out by girls, the methods must be within the reach of all of them. Further favorable publicity is realized on 4-H night when all of the winners and exhibitors are brought before the grandstand where more thousands are watching and listening. A special ceremony is arranged on the stage where the efforts of these girls are briefly explained and the Honey Queen is crowned. Publicity? The newspapers love it—watch the flash bulbs winking in the dark. The local radio stations are eager for such materials and interviews. Your 4-H leaders are only too happy to extend the effort to other areas. All this for a little time, a little work, a little planning, and a little money—money that wouldn't buy an ad in your local paper for a week.

Consider if you will what could be accomplished if a similar program were carried on in each county nationwide—and when you have been startled into realizing how much good we could do for ourselves, consider this; only those of the beekeeping industry can do it. No one else can or will do it.

As was said before, this is not necessarily the only road to improved markets—there may be dozens of them. But, we know from experience that it is workable, it is practical, and it yields most gratifying results. These teen-age girls may easily be of far more value to us than all of the flaming ads combined.

Yes, a little child can lead them—lead others to know the things that we have known for centuries—lead honey to that market that has always been and will always be just next door.

Nebraska

## FUMIDIL-B FOR NOSEMA . . .

Fumidil-B is the Abbott Laboratories trade name for its antibiotic product, fumagillin, for the treatment of Nosema disease in honey bees. It will be supplied in packages containing sufficient activity to treat 50 gallons of sirup at the level of 50 mg. per liter active fumagillin.

Technically, the product is purified Bicyclohexyl ammonium fumagillin with added stabilizers. It is readily soluble in water and is best added to the hot water previous to the addition of the sugar.

Feeding of Fumidil-B medicated sirup is recommended for four weeks before shaking package bees and for continuous feeding of queen-mating nuclei. Subsequent feeding of one gallon of sirup per package colony upon installation should provide about three weeks additional treatment to assure maximum protection.

Commercial beekeepers have reported that an increase of between 25 and 30% in honey production was obtained from colonies built up from packages treated with Fumidil-B. The product is currently being made available for the breeder in the production of packages. This spring beekeepers purchasing a few packages may obtain Fumidil-B in aluminum foil packets, each suitable for the treatment of one gallon of sirup.



# You Asked for It...

Sterling Johnson, Wyoming

What can be done to control the sweet clover weevil?

From all appearances the population of sweet clover weevil rises and falls in relation to the amount of available sweet clover. Sweet clover has made a comeback in the Red River Valley in North Dakota and Minnesota, but the sweet clover weevil is again increasing and has assumed threatening populations. For the past several years biological control through the use of parasites imported from France, the original home of the sweet clover weevil has been attempted. Some insecticides have given fair control when applied early in the spring. For this information it would be best to consult your local county agent as to type of insecticide and time of application. If better control methods are found they will likely be published as all beemen in the northwestern states are facing the same problem.

Miss Edwina Miller, Houston, Tex.

My father is allergic to bee stings. Should he work with bees and try to take stings?

If it absolutely necessary that he work with bees then he should attend to having himself immunized. This should be done by a doctor by administering very small doses of bee venom and increasing them gradually over a period of time. It has been my experience with many cases of bee sting allergy, that once allergic you remain allergic and it becomes worse with continued exposure. Therefore, my advice to allergic people is to stay away from bees. We never worry about swelling. Normally, this will become less with each sting. When severe swelling occurs in treating arthritic patients, we never give more than one sting per treatment until swelling subsides. The treatment area may turn black and blue but it clears up and the swelling is overcome by slow treatment.

F. E. Guyton, Professor of Zoology  
Alabama Polytechnic Institute



## The Polishing Performed by Bees and the Coloration of Wax

(Acknowledgement to Francois Huber by Dr. O. Morgenthauer, Liebefeldt, translated by P. Zimmerman. Reprinted from "Journal Suisse d'Apiculture," Vol. 50, Feb. 1953.)

**A** PREVIOUS article of mine, translated by M. P. Zimmerman, discussed the polishing performed by bees and questioned the curious balancing rhythmical movements made by bees as they cover with a yellowish varnish the wood of the hive or the honeycomb.

Valet and Mager have mentioned two kinds of propolis: one from the buds of certain plants and the other being produced by a secretion of the bees. My article was concerned with the latter and tried to show that the secretion is associated with the movements of polishing.

Francois Huber was the first to write of bees collecting propolis from plants, how they carried it in the pollen baskets, and how the hive bees used it to coat their habitation. This propolis plays an important role in reinforcing the openings of the cells.

Dr. and Mrs. Morgenthauer are now back in Liebefeldt, after visiting their son and grandson in New Jersey. They were at the Tri-State Meeting in Hamilton last August.

Another substance enters equally in play. Experience has shown that the material which colors the wax yellow does not have any relation to the propolis of plants. This must depend on direct action of the bees for it is lacking when one takes care to render pieces of comb inaccessible to the bees by a screen. How do bees carry this to the combs? Let us listen to Francois Huber:

"We are not yet sure of the manner in which they give this tint to the combs. We have attributed it to two different maneuvers; first, the bees which appear to be resting upon the combs, or upon the glass or the wood of the hive, rub the tip of their mandibles against the object which they are supposed to varnish, moving their head back and forth; their jaws spread apart and come together successively, after each motion of the head; their front legs repeatedly rub with some speed the surface upon which they stand; the bee which is thus occupied walks right and left and continues this maneuver for a long time; the wall or the surface of the combs, to which they apply themselves, appears to change color, though we have not ascertained positively that it was in consequence of this work. We have noticed that there is always a little yellow substance in the cavity of the bees' teeth; but was this a substance which they were removing or which they were applying upon the wax? It appeared probable that it was being deposited, though while they rubbed both wood and glass in the same way, the glass did not secure any color, but the wood assumed a very pronounced tint.

"The second process that we witnessed was performed with the trunk; this instrument acted like a slim and soft brush; it swept to the right and left the surface of the glass and appeared to leave upon it a few drops of a transparent liquid.

"At each change of direction, we could see a bright and silvery liquid, flowing from the middle of the trunk and of the two longest palpi which surround it; this liquid was distributed from the end of the trunk upon the parts of cells for which it was intended; it was also deposited upon the glass, but not so as to tarnish it; for the opacity which

glass sometimes acquires is not due to this cause; this happens only when the bees spread upon it parcels of wax which have been deposited upon its surface.

"We shall not affirm which of these operations is the source of the yellowness of wax, but we incline to refer it to the first, because we often thought the color of certain cells altered, after the bees had rubbed them with their teeth and fore-legs."

What Huber says is identical with the polishing or smoothing of modern authors or with the dancers of Vahan even though he does not mention that a series of bees execute this movement simultaneously. As he followed minutely the action of every bee in the perfecting of a cell, his attention was not on the work of entire groups of bees. His results should serve as a point of departure for a new series of chemical and biological experiences.



## Hive Weights

by Dr. V. G. Milum

**A** STANDARD 10-frame hive (9-10) with full-drawn combs (9-10) complete with bottom board (6), inner cover (2), and metal cover (7) weighs approximately 35 pounds. (The individual weights are shown in parentheses.) These comb weights are based on pollen free combs. A standard shallow extracting super with 10 empty full-drawn combs weighs approximately 10 pounds. A 10-frame Quinby depth body (12) with 10 full-drawn combs (12) gives a total hive weight of 39 pounds.

A Modified Dadant hive (13) with 11 full-drawn combs (13), complete with bottom board (7.25), inner cover (2.5) and metal cover (10) weighs approximately 46 pounds. An 11-frame Modified Dadant extracting super with full-drawn combs weighs 15 pounds. In estimating the amount of winter stores in a colony, further allowances must be made for stored

pollen and the weight of the bees depending upon its strength.

In 1934, in connection with keeping of crop records of individual colonies, a record of individual weights of well-filled supers was kept. Full standard 10-frame supers numbering 22 weighed before extraction an average of 83.15 pounds, varying from 80 to 87 pounds. These were selected from a total of 35 supers, six of which weighed between 75 and 79.5 pounds. No record was kept of pollen contained in the combs, or of granulated honey (the amount was negligible), but if we subtract the 18-20 pounds for the hive body with 10 full-drawn combs and something for the wax cappings, there still is left over 60 pounds of surplus honey for each 10-frame full super.

Correspondingly, 65 Modified Dadant supers weighed before extraction an average of 63.68 pounds, varying from 60 to 68 pounds. These were selected from a total of 97 supers, 11 others of which varied between 55.5 and 59.5. Subtracting 15 pounds, the average weight of a Modified Dadant super with 11 full-drawn combs from 63.68 leaves 48 pounds of surplus honey per super.

After reading this, someone may say, the use of 9 frames in a 10-frame super or 10 frames in a 11-frame Modified Dadant super would increase the weight of honey per super. Did you ever figure out just how much more? Assuming that the bees would fill all combs to capacity and leave only a bee space between each pair of combs and between the outer combs and the hive walls, then the increase in honey stored would be that stored in the space represented by the width of one bee space and the thickness of one midrib. This would be equal to less than half a comb of extracted honey or less than 3 pounds for standard supers or less than 2½ pounds for Modified Dadant supers.

## You Asked for It...

Carl Jones, Elkins, W. Va.

**My problem is too much pollen in the combs. Is there any way to clean it out and still save the combs?**

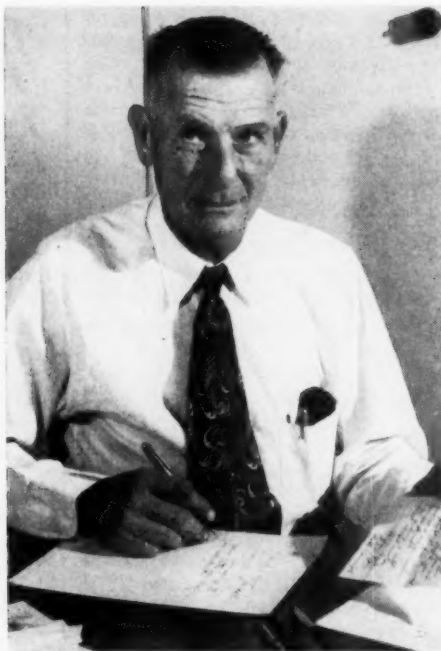
Too much pollen is better than not enough. The bees require a lot of pollen in the spring when brood rearing starts again. I usually leave it on and find in the spring that they do not have too much. Combs of pollen can be soaked and run through the honey extractor and the pollen removed, but this does not always work too well as the combs become broken and the pollen may not extract well. Pollen traps can be used in the entrance of the hive. These allow the bees to pass through a wire mesh but the pollen is scraped off. This pollen can be dried and saved and fed back to the bees later.

W. T. Nickens, Tennessee

**What can be done with honey which has granulated in the combs?**

One way that some of the honey can be removed from these supers is to place the supers of granulated honey under the brood chamber. The bees will carry the honey up into the brood chamber although they are sometimes not very prompt about doing so. Another way to remove it would be simply to place the supers full of honey outside and allow the bees to rob them out. This, of course, is a rather dangerous procedure and we do not know just what your location is nor what the situation is in regard to disease in your territory. It may be against the Tennessee foulbrood law to expose honey in this manner. You had probably best get in touch with your bee inspector before this is done. However, the bees will surely clean the honey out if it is exposed and there is very little or no honeyflow. You might cut the combs out of the frames and melt up the honey and wax but the honey would be badly discolored and this would be a messy job.

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Frank E. McLaughlin, Questions and Answers Editor

## For the Beginner

February is a good month to get equipment in shape for spring. March may find you too busy. Best get new frames and foundation ready well ahead of the time when they will be needed. Nail the frames up and wire them for the foundation. A wiring board, to make the job easy, may be bought from your bee supply equipment company. The side bars of the frames have small holes drilled in at regular intervals to space out the wire evenly. After the wire is run through these holes, back and forth, it is pulled taut and fastened at the end to the side bar with a small brad.

Foundation may be installed this way: Remove the small cleat in the top bar of the frame and clean out any splinters of wood that remain. Install the foundation by placing one edge of the sheet snugly in the groove where the cleat was. If you use ready-wired foundation be sure that the small hooks at the top edge of each sheet are fitted behind the cleat (not under its edge) when you nail the cleat in. Use small nails

when you nail back the cleat. Now the foundation is firmly fastened at the top of the frame.

To hold the sheet of foundation to the frame wires you can use a hand embedder (a small toothed wheel with a handle) or you can use an electric embedder. Both can be obtained from your supply house. The foundation needs to be fastened securely to the wires or when many bees get on the foundation, they may pull and dislodge the sheet.

Assemble new hives, nailing them up carefully and solidly. Then give the outside of the hives, and the bottom of the bottom boards and the covers about three coats of good, outdoor paint. Do not paint the inside of any bee equipment. Honey supers for either comb or extracted honey should also be prepared ahead of the season. Repair and condition equipment on hand that is to be put back into use. Renew bottom boards. Now you will feel good when the days of bee flight come. You are ready.

## ABROAD--

### Presentation Fund for Sir Edmund Hillary

The Beekeepers' Presentation Fund for Sir Edmund Hillary, in recognition of his reaching the summit of Mount Everest, will take the form of a collection of books on bees and beekeeping. A list of the books finally selected will be issued later. Mr. R. D. Simpson has designed a special bookplate for use in the books, and a copy of this bookplate will be sent to all subscribers whose addresses we have. So that beekeepers from other countries have time to send in subscriptions, the closing date has been fixed at March 31, 1954. Subscriptions should be sent to the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane, ASHTEAD, Surrey, England.

### A Beekeeping Picture Library

There are a number of picture libraries, notably Picture Post Library in London with five million pictures and the Picture Collection at the Public Library in New York. We have now started a beekeeping picture library which will be run jointly by the Bee Research Association and the National Beekeeping Museum in Britain, under the direction of Mrs. R. M. Duruz of the National Beekeeping Museum.

Pictures in the Library, which will be known as the Bee Research Association Picture Library will be available for loan, on payment of a small fee, to those interested in study and research, for educational exhibits, for instructors who need lecture illustrations, for those organizing honey shows in Britain, and for publication use. Each picture will bear the name of the person to whom the copyright belongs so that it should be possible to apply for permission to reproduce those selected.

We appeal for photographs and other pictures, particularly of the history of beekeeping, beekeeping in different countries, of persons who have contributed to the science and craft of beekeeping, of bee anatomy, bee behaviour, bee disease and enemies, other bees and allied insects and subjects relevant to beekeeping.

We hope to maintain a fairly high standard of photography and we do not want photographs smaller than



8x10 cm. unless they have some exceptional value.

Pictures should be sent to Mrs. R. M. Duruz, B.R.A. Picture Library, c/o 55 Newland Park, Hull, Yorkshire, England. Each picture should state on the back to whom the copy-right belongs, and carry as much information as possible about the subject of the picture.

Dr. Eva Crane

### British National Beekeeping Museum

American beekeepers will be interested in this venture. We hope to create a section to show the history of beekeeping in the United States. We should like to hear from similar institutions in America with a view to exchanging photographs and material. Our Museum is sponsored by the Bee Research Association whose director is Dr. Eva Crane.

Dr. Crane is keenly interested in preserving historic relics and recreating the story of the past. The Museum is housed in the Museum of English Rural Life (University of Reading) in southern England where our visitors will find a surprising amount of material, including rustic apiaries typical of those seen in different parts of the British Isles, skeps, and other items of beekeeping before the discovery of the movable frame hive in 1851.

Also later developments, photographs of ancient civilization showing that beekeeping and the products of the honeybee were known to the Maya, Greeks, Cretans, Egyptians and Romans, old printed books with engravings, development of such tools as smokers, feeders, queen excluders and queen cages. We have the beginnings of a natural history collection (types of bees, honey, wax) and a collection of items from famous beekeepers. We plan also to show newest equipment.

R. B. Willson, 250 Park Avenue, New York 17, New York is arranging for the shipment of any gifts to the Museum from America. The address of the Museum is: National Beekeeping Museum, c/o Museum of English Rural Life, 7 Shinfield Road, Reading, Berks.

Mrs. R. M. Duruz  
55 Newland Park  
Hull, ENGLAND

### Honey Popular with Marathoners\*

At the 1952 Olympic Games in Helsinki, Finland, a survey was made of all athletes taking part in the classic endurance competition of them all—the famed Marathon run. This survey centered on diet habits of the athletes training for the race, and included information on what they ate the morning of the race and also what supplementation they took during the race. More than 70 per cent of these athletes said they used honey during their regular training and more than 40 per cent used an energy mixture during the race (26 miles, 385 yards) which contained honey. This is still another indication that with the people who most need energy fuel of the highest possible standard, honey is the number one favorite.

\*The above appeared in "Product Research Reports," by Lou Allan, Sports College Research Guide No. 8, 1953.

### Australia

Honey production in Australia has reached record heights but export sales have dropped. To assist the industry to build up its market, the Commonwealth Government has made available 10,000 pounds for publicity purposes in the United Kingdom and the industry will make a similar amount available.

A large and increasing number of migratory beekeepers, coupled with the fact that considerable honey is sold to local stores and consumers, makes the collection of accurate figures difficult, but from 1934 to 1939 the average production of honey was 17,800,000 pounds, exports averaging 1,000,000. During 1951 production was 53,200,000 pounds with exports totaling 32,100,000 pounds.

There are only two markets of importance, the domestic market and the market in the United Kingdom. Pre-war average consumption per person in Australia was 2½ pounds but this is now down to 2.2 pounds. United Kingdom consumption is up 2.7 per head, a rise of some .2 pounds since pre-war days.

Domestic production in the United Kingdom now appears to be about 12,500,000 pounds so imports of honey to there have risen steeply. The share of Australian producers in this market has shown a tremendous increase, supplying more than 90 per cent of the total imports.

The Quarterly Review of Agricultural Economics assumes that the United Kingdom demand will become stabilized at .6 pounds per head, necessitating an annual import of 17,500,000 pounds.

William Beecham  
Perth, Western Australia

## Notice

Sir Edmund P. Hillary

There is a very excellent chance of Sir Edmund Hillary, the New Zealand Beekeeper who climbed Mount Everest, attending The Cook DuPage Beekeepers Association annual meeting and banquet in Chicago, February 20, 1954.

A. J. Smith, Secretary

### Market Bulletin Board . . .

During the State Convention in Springfield, Illinois, L. P. Baker, Inspector from Glencoe, made the suggestion that bee association meetings should have a large bulletin board on one side saying "I want to Buy" and on the other side "I Want to Sell." As beekeepers register, the information may be given to the clerk in charge of registration.

In other words this makes a trading post along with the meeting.

It is to be used in the Chicago meeting of the Cook-DuPage Association in February. Maybe this will pep up attendance at some of the bee meetings.

### Cotton Acreage Down in 1954

The amount of land allotted to cotton for 1954 by the Department of Agriculture in our nation's Capitol is due to be reduced by 7 million acres, or 33 per cent. This would indicate probability of this same retired land to be planted, in part at least, into legumes like Hubam, vetch, lespedezas and the clovers.

These allotments are regulated by acreages planted by the various states in 1947-48 and 1951-52. While Secretary Benson may recommend some increase in allotments, legislative action would be necessary to change the present percentages. Of course cotton farmers have the opportunity to reject such allotments by majority vote, but this would mean also abandonment of price support, so such action would seem unlikely.

## Farrar—Nosema—

(Continued from page 53)

For the production of Nosema-free package bees, each colony should be fed the equivalent of at least two 10-pound pails (7 quarts) of fumagillin sirup during the 4 weeks prior to the shaking period. The treated sirup should be divided into two or three equal lots to provide a more continuous supply. A heavy sirup (2:1) is better than thin sirup.

Fumagillin should be included in all the sirup fed to queen-mating nuclei. Not only will the young queens receive protection before shipment, but the small populations of nuclei will receive protection against abnormal mortality. This treatment should materially reduce the amount of labor and extra bees needed to keep the queen nuclei in full production.

Beekeepers who use packages

should feed fumagillin sirup when the colonies are established. The equivalent of a 10-pound pail of sirup is recommended. Several years of experience in the use of fumagillin may be needed before producers can guarantee Nosema-free package bees.

A new salt of fumagillin has recently been tested which is approximately twenty times more soluble than the fumagillin used in the earlier tests. It has the same antibiotic activity as the other fumagillin, is nontoxic at the concentration required for Nosema control, and has adequate stability in sugar sirup. It appears to have even greater stability in dry form than the previous fumagillin. This more soluble fumagillin has a distinct advantage for commercial use.

The dosage used in these tests, 50 mg. of active fumagillin per liter,

equals 189.3 mg. per gallon of 172 mg. in a 10-pound pail of sirup (about 3.5 quarts). Actually, beekeepers who use fumagillin will not need to make these precise measurements. It is expected that this new salt may be available in tablet form for the producer who operates a few colonies, and in packets of powder suitable for mixing with 50- or 100-gallon lots of sirup for commercial users. Thus, the beekeeper would simply mix the contents of a package into the prescribed amount of sirup.

Sound management practices must not be neglected when therapeutic agents are used in direct attack on the disease-causing organism. Package colonies must have productive queens, adequate reserves of pollen and honey, and good combs providing ample space that is properly organized.

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## Current Reading

Conducted by  
M. G. Dadant



### Two Kansas Bulletins . . .

"Bee Culture in Kansas" by Dr. R. L. Parker appears as Bulletin 357 of the Agricultural Experiment Station at Manhattan. An 84-page bulletin, well illustrated, it shows the usual good work of Dr. Parker. He discusses many angles of beekeeping from beginning with bees, to equipment, installation, management, and the harvest. Care and protection of honey, queen rearing, pollination, nectar and pollen plants, races of bees, diseases, treatment and sprays are also discussed. A very fine addition to bee literature.

Technical Bulletin 74 of the same station treats "Relation of Weather Factors to Nectarflow in Honey Production" and has as its authors R. L. Parker and Joseph O. Moffett, who is assistant entomologist of Colorado Experiment Station but was doing work in Kansas in connection with his Master of Science degree.

Records used comprise data since 1918 of from 3 to 8 colonies kept

on scales. Poorest years were an average of 4 pounds per colony in 1936 and 10 pounds in 1934. Best were 210 pounds in 1946 and 215 pounds in 1943.

Only weather factor significantly affecting July honeyflow was December-February precipitation. April temperatures and June precipitation correlated with June honeyflow. Maximum daily temperatures of 90 to 94 were best for June and July flow; for August 85 to 89 degrees. In the best years, June rainfall averaged 7.47. A warm April and cool May and June were related to the better years.

It would be interesting if the studies could be prolonged with the idea also of finding the significance of soil content to nectar secretion.

### Honey in Cooking . . .

Two leaflets on the uses of honey for cooking have recently come into this office. The first is "Honey—Some Ways to Use It" issued by the Bureau of Human Nutrition and

Home Economics, U. S. D. A., Home and Garden Bulletin No. 37. It is an attractive little folder describing honey, honey grades, how to keep and serve honey raw, and how to cook with it. Recipes are given for bread, cakes, cookies, desserts, candy, pastries, punch, salad dressings, sandwich fillings and sauces.

The other leaflet is "Honey Recipes" Mimeo HE-171 of Purdue University Agricultural Extension Service at Lafayette, Indiana. Besides directions on how to use honey, recipes are given for breads, cookies, desserts, drinks, icings and fillings. Acknowledgement is made to Ruth Jordan of the Department of Home Economics.

Both leaflets would make a good addition to the files of a good honey cook. The first is for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. at a price of 10c. The second may be obtained from the Agricultural Extension Service, Purdue University, Lafayette, Indiana.





*From Here and There*



# Tennessee



Governor Clement proclaims Honey Week in Tennessee. Here we have Governor Clement, with the Proclamation, being handed a jar of honey by State Apiarist Leslie H. Little, who was Regional Chairman of the southeastern area for the National Promotional Program for Honey Week; and, at the right, State Chairman Earl Barham. Governor Frank G. Clement proclaimed the

week of October 25 to October 31 as Honey Week. Center, Buford Ellington, Commissioner of Agriculture.

So the million dollar honey crop of Tennessee received official recognition. Twice in recent years Tennessee honey has been a million dollar crop. In 1947, \$1,455,000 and in 1951, \$1,347,000. Colony high, 1945, 195,000.

## Results of the Drought

The long period of extremely dry weather covering most of Tennessee will have a drastic effect on the early spring honeyflow. It will be necessary to examine colonies early in spring around the first of March to note their condition and feed them to help increase their population, or they will not be up to strength for whatever honeyflow days there may be.

## A Bee Book for Bee-ginners

This is the title of a revision of the bulletin by Leslie Little of the Division of Apiculture of the Tennessee Department of Agriculture. The cover has a beautiful picture of a bee on clover taken by H. A. Schaefer of Wisconsin. In several

ways the bulletin is unusual because of the ingenuity of its language. According to the bulletin there are three kinds of bees in the colony, the ruler (the queen); Miss Bee (the worker); the Shirker (the drone). In describing races of bees the caption reads "bees form several race groups with distinguishable national traits." The drone is described as a gentleman of leisure. Then the bulletin goes on with many pictures besides directions for the beginner or even the experienced beekeeper; very good advice on all phases of beekeeping. It takes the beekeeper through the first season and on into the second year of beekeeping. Copies of this bulletin are available from the Tennessee Department of Agriculture, Nashville 3, Tennessee.

## Grundy Forms Beekeeper Club

The Grundy County beekeepers met at the Cumberland Heights Community house in Coalmont, Tennessee in a meeting addressed by Earl Barham, state deputy inspector who discussed pollination, races of bees and the advantages of a county association. Forty-one of Tennessee's 95 counties have local associations at the present time, all of whom receive help from the state apiarist, L. H. Little, or from his six assistants. Dues are usually a dollar a year, half of which goes to the state organization and the balance stays in the county for local use.

## The Use of a Double Brood Chamber for Sourwood Honey

by Roy D. Brown, Hartford



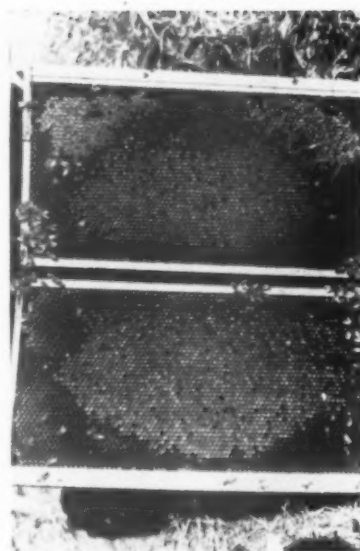
I seriously question the use of a double brood chambered hive unless (1) you use a queen capable of utilizing the extra space (2) you have an ample supply of pollen, salt and feed and (3) in East Tennessee each colony should be given five to ten pounds of sugar sirup the last of March whether they need it or not. If these three jobs are done by the first of April and your colonies are in double brood chambers and the weatherman has decided to let spring come, then reverse your brood chambers; that is, set the top brood chamber on the bottom board and the bottom brood chamber on top. Do this about every three weeks un-

til the sourwood flow starts.

Weather will have a bearing. If you have a week of cool weather, then extend the time of reversing by that much. You will usually have to add a couple of supers above an excluder on the second hive body before the sourwood flow, especially if your early spring flows are good. The extra space you add and the reversing of the brood chambers will reduce swarming to a great extent.

In June, check on your sourwood trees and when you see the first bloom cup begin to open usually at the top of the tree and always at the base of the bloom stem, check your bees and unite all weak colonies with the strong ones or put three or four weak ones together.

Go into the strong colonies and find the queen and put her in the bottom hive body with all the young brood and eggs. Then set on the super of honey and on top of this set an empty super leaving a  $\frac{3}{8}$  inch entrance between the super of honey and the empty super either by sliding the empty super back  $\frac{3}{8}$  inch or setting two  $\frac{3}{8}$  inch wedges under the front corners of this super. Now set on the remaining hive body of sealed and emerging brood. If the flow is normal you will have to add more supers in about ten days or three weeks. Add them at this second entrance. Above all keep plenty of empty comb on these colonies at all times during brood rearing and the honeyflow.



Combs with an abundance of pollen from Jones County. Such combs are valuable and very necessary if colonies are to build up for the early honeyflow. In some parts of North Carolina, pollen is available continuously from early in January. While the bees are seldom seriously curtailed in brood rearing from lack of pollen, it is rare to find as much surplus in combs as this picture from W. A. Stephen shows.

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## North Carolina

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The picture is hard to assign to either of the gentlemen shown. At the left, with the comb and bees, is Extension Apiarist W. A. Stephen, the mainspring of beekeeping service to thousands of North Carolina beekeepers; and at the right Ralph Mills, who, with his camera, turns out many of the pictures we receive from the Carolinas. Ralph Mills is with the Visual Education Department of the State College at Raleigh and "Steve" is also with the State

College at Raleigh. They make quite a team. Steve, is known to most Carolina beekeepers and to many in neighboring states, while Ralph is becoming increasingly familiar at short courses and conventions. Some of his pictures have appeared in the American Bee Journal (see "How to Make a Bee Beard" in the December issue. Some of them also appeared in "Life" magazine).

### Wild Flower Bee Club, High Point

R. R. Blackburn of High Point sends a clipping from the High Point Enterprise, May 25, 1952, about this group of local beekeeping enthusiasts. One of the features of the meetings of this club is a round table on timely discussions such as swarming, the queen, requeening, and so forth. Forrest Cates, a staff writer for the Enterprise, wrote a story about the club activities and turned out almost a full page of information with pictures for his paper. Officers are R. R. Blackburn, president, Murrell White, secretary, and Paul Weaver, treasurer.

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## Maine

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A. A. Strout, Bangor, Maine reports: I began in 1943 with two colonies and by increasing with packages and swarms in the fall of 1946 I had twenty prime colonies. What I want to impress on beekeepers in this region is successful wintering where winters are severe.

In 1946, I housed my bees in a building, dark and properly ventilat-



ed, with no protection other than the  $\frac{7}{8}$  inch wall of the hives. In the spring there were only six colonies alive, so weak they hardly did anything and failed to withstand the following winter.

In the spring of 1947 I bought seven packages (at present I have 61 colonies) and now I consider my way of wintering successful. I house the bees when the weather is cold (December 1-20) in a dark building so that no light can be seen. I set 12 hives in a row the whole length of the building, two inches from the wall, entrances facing out and open. I stand up a board and screw it to the front of the row of hives, extending 2 inches above the top. My

inner cover has a screened opening in the center 1 inch by 3 inches for ventilation.

I then fill the space back of and on top of the hives with sawdust and set another row of hives on top of the first and so on as high as I want to go. The hives are warm when I remove them and there is no fear of spring dwindling. They will stand the changeable spring weather. When I set them out, I remove all packing.

I think, too, that bees will winter equally as well outdoors in this severe climate if they are packed on all four sides and on top with three inches of sawdust, all covered with a weatherproof covering.

## Georgia

### Southern Conference—ABBA

Celebrating the 25th Anniversary of the founding of the Southern States Beekeeping Conference, this organization, together with the American Bee Breeders Association, met at Atlanta, Georgia on November 2 and 3. From the point of the casual visitor, this was one of the finest planned and finest organized meetings and programs that has been the pleasure of the writer to attend. In the charge of David Dunavan of South Carolina and with two excellent presiding officers in Leslie Little of Tennessee and Leslie Lewis of Florida, the program went off like clock work with very excellent short talks by a number of participants.

Particularly of importance were the suggestions made by the representatives of both the Owens, Illinois Glass and Hazel-Atlas Glass Company on the necessities in the marketing of honey in glass both as to package position on the shelf, label, etc. We hope to have these articles reproduced in the American Bee Journal.

Clayton L. Farrar of the Bee Culture Laboratory at Madison, Wisconsin reported on his experiments with fumagillin on some 2,000 to 2,500 cases in cooperation with other cooperating beekeepers and bee breeders. He is of the definite opinion that when fumagillin is spread both through package producing colonies in the South and to overwintered colonies in the North, it may mean the most complete subjugation of Nosema disease and he

hopes an increase in the honey crop of some 30 to 75 pounds per colony over the average where Nosema may be prevalent and no cures effected.

It is hoped by the spring season to have this material available in an easily soluble form so that it can be used both by the package breeder and the northern operator. On first examination it would appear the cost per colony would be high, running from 25 to 75 cents a colony, which cost of course will be greatly reduced when the material is produced in volume. We hope to have more about this later in our columns.

R. B. Willson reporting on honey distribution in marketing mentioned that some 5 million pounds of honey is used in the New York area in the production of honey breads.

Exports abroad reveal that much honey is used on the table but in Holland it is used largely for cookies and cakes, in France for "pain d'epice" (gingerbread), in Switzerland for general uses, in Italy mostly in candy making.

Willson believes that when something like normal exchange becomes available, our possibilities of export even without subsidy will be quite excellent for our American honeys.

C. W. Vest reporting on pollination in Virginia, stated that 85 per cent of the orchardists used bees there and that probably 90 per cent of them are Virginia bees hauled into the orchards. The charge per colony runs from \$4.00 to \$6.00.

It was revealed in the course of the meeting that Dunavan of South

Carolina has seven plots of earth on test with various honey plants in an effort to ascertain the reaction of various soils on nectar secretion in honey plants. Similar efforts are being made in the Georgia Experiment Station at Tifton.

All in all, the meeting of some 250 people was highly satisfactory being held at the Atlanta Biltmore Hotel in the heart of this giant southern city.

Officers for 1954 are A. D. Hiatt of West Virginia, president; L. M. Dewey, Florida, vice president; H. S. Foster, secretary; and the meeting place for 1954 probably late in November or early December was set for Orlando, Florida.

A.B.B.A. selected J. W. Newton of Baton Rouge as president, W. W. Wicht of Hattiesburg, Miss., as vice pres., and J. F. McVay of Jackson, Ala., as secretary.

Georgia State now has Wallace Jernigan as president, A. V. Dowling of Valdosta as vice-pres., and J. H. Girardeau Jr. of Tifton as secretary.

## Wisconsin



Presentation to H. J. Rahmlow

H. J. Rahmlow, at the 75th Annual Convention, received an award for service for his many years of sacrifice in the interest of beekeeping in Wisconsin. A Parker 51 pen and magnetic desk set were presented to him with this sentiment: "This trinket is not meant as a payment for service but rather that it may remind Mr. Rahmlow of what he has done for us." The association looks forward to his continued dedication to our cause which has been a part of his position in the past as corresponding secretary.



# Washington



Thomas H. Rownes, Cloverdale Apiaries, Walla Walla, is shown here in a local food center, spending time to advantage passing out honey samples on honey graham crackers. This not only sold honey but it also

sold honey graham crackers. This is a cooperative project between Mr. Rownes and the representative of the manufacturer, Mr. Wm. R. Rogers, salesman for National Biscuit Company.



Mr. and Mrs. Glenn Miller, Tacoma, Washington took first prize at the Washington Fair for this display, \$75.00. Good going!

**Honey—Nature's Perfect Sweet'ner**  
This is the title of a mimeographed four-page bulletin put out

by the Washington Association giving holiday recipes for the use of honey—fruit cake, fruit bars, pumpkin pie, stuffed ham, cranberry salad, salad dressing, baked apples. Association use of bulletins like this can do a lot of good.

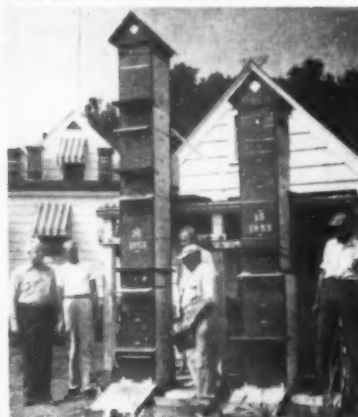
## Bright Three Banded Italian BEES AND QUEENS

Our Strain of Bees has been tested for 50 years and you cannot go wrong with them.

| Queens  | 2-lb.  | 3-lb.  | 4-lb.  | 5-lb.  |
|---------|--------|--------|--------|--------|
| 1 to 50 | \$1.00 | \$3.25 | \$4.25 | \$5.25 |
| 50 up   | .90    | 3.00   | 4.00   | 5.00   |

## TAYLOR APIARIES

Box 249, Luverne, Ala.



Build up your Colonies with electric heat. The hives in the above Picture Yielded 640 and 485 Lbs. respectively. If no electricity available, there is a Plan for you. Think about it now.

## Write for Information to: GEORGE ADELHARDT

303 Johnson St. Libertyville, Ill.

## Italian Queens & Packages

| Nice Large Queens | 1 to 24 | 24 to 99 |
|-------------------|---------|----------|
|                   | \$ .95  | .90      |

Write us for early queens and prices on packages.

## MITCHELL'S APIARIES

Box 391 Bunkie, La.

Book Your Caucasian Queen and Package needs early for the the 1954 Season

## HOWARD WEAVER

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International scientific journal published monthly by the Bee Research Association and edited by Dr. Eva Crane.

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## YORK'S PACKAGE BEES and QUEENS FOR 1954

7,500  
Colonies

Quality and Service

Your Choice of Two Outstanding Strains  
Quality Bred Dadant's Starline 4-Way Hybrids  
Quality Bred Italians



*The Preference of Leading Honey Producers*

### Packages with Italian Queens

| Quantity     | 1-24   | 25-99  | 100 up |
|--------------|--------|--------|--------|
| 2-lb. ....   | \$3.75 | \$3.50 | \$3.25 |
| 3-lb. ....   | 4.75   | 4.50   | 4.25   |
| 4-lb. ....   | 5.75   | 5.50   | 5.25   |
| 5-lb. ....   | 6.75   | 6.50   | 6.25   |
| Queens ..... | 1.25   | 1.15   | 1.05   |

Above prices are for/or with our regular line Italians. For DADANT STARLINE 4-WAY HYBRIDS add 25c each additional. For TESTED QUEENS add \$1.00 each additional. For QUEENLESS PACKAGES deduct \$1.00 per package.

Shipments are made by express, parcel post, or your truck. Detailed shipping information available. Trucks loaded from 7,500 colonies in a minimum of time. Fast service on queens from 7,000 nuclei. BOOK-ING ORDERS NOW for choice shipping dates.

**YORK BEE COMPANY**

**Jesup, Georgia, U.S.A.**

(The Universal Apiaries)

### Starline

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### Italian

Young mated queens, full weight packages, health certificate, live delivery, satisfaction. We offer two top performing strains: Dadant's Starline, a proven top performer, and our regular light colored Italians.

#### Packages with Italian Queens, F.O.B.:

|              | Italian Q. | 2-lb.  | 3-lb.  | 4-lb.  | Starline Q. |  |
|--------------|------------|--------|--------|--------|-------------|--|
| 1-24 .....   | \$1.20     | \$3.25 | \$4.25 | \$5.25 | \$1.50      | Packages with<br>Starline queens add<br>25c per package. |
| 25-99 .....  | 1.10       | 3.00   | 4.00   | 5.00   | 1.40        |  |
| 100-up ..... | 1.00       | 2.75   | 3.75   | 4.75   | 1.30        |  |

**SUNKIST BEE COMPANY**

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Carloads of Lewis Beeware and Dadant Foundations.

**Lewis Dadant Branches** — 92 Riverside St., Chillicothe, Ohio; 1010 W. Austin St., Paris, Texas;  
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## LEAHY BEE SUPPLIES

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## As Before In '54

The Honey Bee Improvement Co-op Assn. and Rossman Apiaries have entered contract for the production of Island (Kelleys) Hybrid Queens another year.

Island Hybrid Bees are produced by crossing two inbred lines to produce the virgin. When mated to a drone produced from another two lines the result is an outstanding bee possessed of full hybrid vigor. They have been tested both by U.S. and Canadian Bee Culture.

*Reserve your date by placing order at once.*

|                           |             |             |
|---------------------------|-------------|-------------|
|                           | 1-25        | 26 or more  |
| 2 lb. bees with Hybrid q. | \$3.65 each | \$3.40 each |
| 3 lb. bees with Hybrid q. | 4.65 each   | 4.40 each   |

For regular queens deduct 25c from above prices.

"They Produce"

**ROSSMAN APIARIES**

P. O. Box 133

Moultrie, Ga.

## STOVER'S SUPERIOR PACKAGE BEES FOR 1954

**ITALIANS**

**CAUCASIANS**

*Good Bees — Good Queens — Good Service*

We are prepared to load your truck, ship by Express or Parcel Post, and we appreciate your order, large or small. Let us book your order now, no deposit required.

### Our Prices

| Lots of- | Queens | 2-pound<br>& queen | 3-pound<br>& queen | 4-pound<br>& queen | 5-pound<br>& queen |
|----------|--------|--------------------|--------------------|--------------------|--------------------|
| 1 - 24   | \$1.15 | \$3.50             | \$4.40             | \$5.30             | \$6.20             |
| 25 - 99  | 1.05   | 3.25               | 4.10               | 4.95               | 5.80               |
| 100-499  | .95    | 3.00               | 3.80               | 4.60               | 5.40               |

Tested queens \$2.00 each

Queens Postpaid-Airmailed or Clipped at no extra cost.

For Queenless Package Deduct Price of Queen  
Packages F. O. B. Shipping Point

**THE STOVER APIARIES**

Mayhew, Mississippi

# ET'S GET TOGETHER

## Vermont Beekeepers Winter Meeting, Barre, February 16

The annual winter meeting of the Vermont Beekeepers Association will be held on Feb. 16, '54 at 12:30 P. M., at the Country House Restaurant in Barre, Vermont.

Following the luncheon, we will have the business meeting.

The top event of the program will be History of Vermont Beekeepers Association by Judge H. William Scott. Judge Scott was secretary of the Association back in 1890 and has been active in the association since.

We will have other interesting speakers, as well as moving pictures of honey bees.

Everyone interested in bees is invited to be with us at this meeting.

Clyde N. Wood, Sec'y.

## Westchester Co. Beekeepers Assoc. New Rochelle, N. Y., Feb. 21

The Westchester County Beekeepers' Association will hold its next meeting at 2:30 P. M. Sunday, Feb. 21 at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. All persons interested in beekeeping are welcome. Refreshments will be served at the close of the meeting.

Carlton E. Slater, Publicity

## Cook DuPage Beekeepers Assoc. Chicago, Ill., Feb. 20

The Cook DuPage Beekeepers Association annual meeting and banquet will be held Saturday afternoon and evening Feb. 20, 1954 at the Lawson Y. M. C. A., Chicago Ave. and State St., Chicago, Ill. Afternoon speakers will be Carl E. Killion, Chief Inspector; Prof. V. G. Milum, University of Illinois; Dr. M. H. Haydak,

University of Minnesota; Walter Barth, Assistant Editor of Gleanings.

The evening session will be a panel discussion by the speakers of questions brought in by the beekeepers. Colored slides and movies, music and entertainment will be enjoyed.

Dinner will be served at 6:30 p. m. at \$3.00 per plate. Make reservation early to A. J. Smith, 5835 W. 127th St., Worth, Ill. Phone Fulton 5-0153.

A. J. Smith, Sec'y.

## Connecticut Beekeepers Assoc. New Haven, Feb. 20

The winter meeting of the Connecticut Beekeepers Association will be held on February 20, 1954, the third Saturday of the month, at the Connecticut Agricultural Experiment Station, New Haven, Conn. The program will be a Panel Discussion

on Beekeeping. Come and bring your questions to the panel. The Connecticut Association will furnish coffee and there will be a pot luck lunch. The Association cordially invites all beekeepers and their friends to attend. Others who may be interested in bee culture are welcome.

Philemon J. Hewitt,  
Chairman of Publicity

## Middlesex Co. Beekeepers Assoc. Waltham, Mass., Feb. 27

Middlesex County Beekeepers Association (Mass.) will hold their next regular meeting at the State of Mass. Experimental Station in Waltham February 27 at 6:30 when a hot homemade buffet dinner will be enjoyed after which the business meeting will be devoted to plans for the Spring Show.

It has been announced by President

## International Congress

Copenhagen, August, 1954

The International Beekeeping Congress will be in Copenhagen in August this year, the exact dates will be available later. Visitors from this country, if present plans mature, may be able to go together by boat and then by bus to the Congress and perhaps to points of interest in England and Scotland and on the continent. Inquiries should be sent to Mrs. W. A. Stephen, Box 92, Cary, North Carolina.



Likely to be seen at the Congress — Brother Adam, famous apiarist of Buckfast Abbey in Devonshire (southwest), England. (Photo by W. A. Stephen, North Carolina)



Chester McInnis that he has appointed John Proctor of Needham as Chairman for the Bee Display that will be set up at the "Mechanics Building" on the occasion of the 83rd annual "Spring Flower Show" of the Massachusetts Horticultural Society. Mr. Proctor has announced that the theme of the display this year will be, "HONEY from the Hive to the HOME" and will feature the food values of HONEY and its uses in Homemaking. Much of the February meeting will be devoted to this subject and a prominent speaker is

expected to address those present.  
John H. Furber, Sec'y.

**Cuyahoga County Beekeepers Assoc.**  
Cleveland, Ohio, Feb. 14

The winter meeting of the Cuyahoga County Beekeepers Association will be held Sunday afternoon, February 14 in the basement of the Miles Avenue Church of Christ, 9200 Miles Ave., Cleveland, Ohio. Walter Barth of Gleanings will show colored slides about bee culture.

Dr. E. E. King, Pres.

## --- SHORTS ---

### About Your Editorial . . . "Improvement Only Comes from Within"

You know how we feel about sanitation in the handling of honey. Seems to me that an excuse such as mentioned in your editorial is a weak one and it is difficult for us to understand why anyone would withhold membership in the Federation because of the sanitary recommendations which may have been made.

You are right in your statement about the regulations which the Federal Pure Food and Drug Administration have and which they can enforce. Similar regulations are available for enforcement by many of our states and cities.

I deplore enforcement when a condition can be solved by an industry or a group from within and I think those who take an opposite view are shortsighted and will find themselves caught short when one of the Government Agencies sees fit to step in and enforce regulations available to them.

Sanitation is a problem we shall always have with us but it would be far better for the industry to follow some common sense rules of cleanliness before enforcement demands too many beekeepers and others within the industry who hide behind the phrase "Germs common to humans cannot live in honey." Remember honey is a food and we cannot be too clean about handling it.

Thomas L. Ball  
Denver, Colorado

### In Memoriam . . . George Kirkpatrick

Through Don F. Kloefer of Grand Ledge, Michigan, we learn of the passing of George Kirkpatrick of Kalkaska on November 30, 1953. He was one of our old-time beekeepers.

### "Bees for Hire" . . .

The Texas Company has a 29-minute color film with the title, "Bees for Hire," produced by Audio Productions, Inc. This is the eighth in a series of films the Texas Company has made for the information and entertainment of its farm customers and it is the company's way of saying "thank you" for their continued use of Texaco products.

This film shows pollination for a generous amount of its total sequence and then moves into the hives for a look at the young ladies who make this modern farming method possible. Then what follows is an exciting twenty minutes of "wild life" footage. No film has made such an extensive study before nor succeeded in capturing as much of the bee's entire life and work.

Some of the new information about the language of the bees and their way of communication is covered also by the film.

"Bees for Hire" will be shown at farm meetings all over the country this winter. It is hoped that, after first-runs before its farm friends, the company will make the picture widely available to thousands of non-farm and television audiences.

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# The Market Place . . .

## BEES AND QUEENS

**DARK ITALIAN QUEENS**—600 lb. strain, bred for production, \$1.00. With 2-lbs. of bees, \$2.80; with 3-lbs. of bees, \$3.65. Henry Lochr, Caldwell, Texas.

**LIGHT 3-BAND Italian package bees and queens.** Orange Bee Co., Effand, N. C.

**YELLOW ITALIAN BEES**—Real producers. Health certificate. Satisfaction guaranteed. 2-lbs. with queen, \$3.70; 3-lbs., \$4.70; 4-lbs., \$5.70. Queens, \$1.20. O. E. Brown, Rt. 1, Asheboro, N. C.

**ITALIANS**—Packages, queens. Martz, Rt. A2, Box 846, Vacaville, Calif.

**CARNIOLAN QUEENS** mated to Caucasian drones. Order must be in six weeks before shipping date. Howard Weaver, Navasota, Texas.

**CAUCASIAN and CARNIOLAN** queens, package bees. Write for 1954 price. Tillery Brothers, Greenville, Ala.

**10-FRAME** single story colonies of bees with young laying queens delivered loaded on your conveyance at our place. Write for particulars. P. M. Williams, Castleberry, Ala.

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**FOR SALE**—40 colonies, 160 supers, M.D. Plenty stores, crimp-wired combs. Excellent condition. Health compels sell best offer. R. H. Wilson, 1511 Root St., Flint, Mich.

**FOR SALE**—All or part of my entire outfit of 10-frame colonies of bees and equipment composed of equipment for approximately 400 colonies, including enough supers most of which have drawn combs well sorted. No disease for years. This is a first class outfit ready to go to work. Priced reasonable. Leonard Robins, Rt. 3, Mt. Sterling, Ill.

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**400 10-fr. colonies** bees at Blackfoot, Idaho, with equipment for over 500. Cozy Nook Apiaries, 313 W. 138 St., Hawthorne, Calif.

**HOLLY-LINN APIARIES**, Dayton, Texas. Well established business. Good record of honey production. 950 standard 10-fr. clean colonies. Best southern locations. Modern extracting and packing plant. Large storage area. Mrs. Tyra Fulton, Trinity, Texas.

**MONTANA APIARY** for sale because of ill health and age. Write Box 38, c/o American Bee Journal.

**FOR SALE OR TRADE**—Morgan Apiaries, located at Brooks, Alberta, on the new paved trans-Canada highway. All or part of 1200 colonies complete outfit. Located in the center of a vast irrigated area famous for its extra white No. 1 honey. No dark honey produced. No crop failures in my 23 years here. My best colony average for the whole outfit spring count was 363 lbs. Average annual production 75 to 100 tons a year. Will sell bee equipment for one-half price and rent or trade land and buildings and new house for California real estate. Will supply high production queens and teach the new owner the very necessary "Know How" from my 43 years' experience. C. Elmer Morgan, 118 West De La Guerra, Santa Barbara, Calif.

**FOR SALE AT AUCTION**—Honey production equipment and trucks. Write for complete list. R. L. Griggs, Hancock, Iowa.

**HONEY HOUSE** 16 x 48 ft. 2-story, with lean 8 x 48 ft. John Schroeder, Wentworth, S. Dak.

**FOR SALE**—Twenty colonies of Italian bees. Inspected. Also supers, drawn frames and other equipment. Price reasonable. C. A. Divelbiss, Lexington, Ohio.

**FOR SALE**—10-frame bee equipment. 1200 full depth bodies. 300 metal tops with inner cover, bottom boards. 1 1-h.p. boiler. Russell D. Smalley, Beaver, Iowa.

**FOR SALE**—Johnson dovetail machine, complete without motor. Price \$80.00. Dr. G. C. Dalphond, North, S. C.

**FOR SALE**—750 colonies of bees, double brood chamber, all young queens. Bees are in excellent condition, no disease. Approximately 2000 supers, new truck, extracting equipment and honey house. This business is owned by widow who is unable to handle and must be sold. This is a fine business for the right party. Little Horn Apiaries, Hardin, Mont.

**FOR SALE**—Complete 600 colony outfit in Northern Alberta in clover seed growing district. Wonderful spring build-up area with continuous clover and fireweed honey flow until autumn frost. Land, buildings and all extracting equipment included. Also 1952 two-ton truck, if desired. Write Box 39, c/o American Bee Journal.

**50 COLONIES** of Italian bees near Medford, Oregon. Lots of surplus honey. Good hives, regularly inspected. Amos Harker, Box 131, North Hollywood, Calif.

**ONE Lewis-Markel** eight-frame extractor, \$30. One six-inch foundation mill with take-off, \$30. 4 1/4 plain sections, \$10 per thousand. 200 ten-frame and 100 eight-frame hive bodies with frames, \$1 each. Hundreds of inner and outer covers and others. H. G. Quirin, Bellevue, Ohio.

## HONEY and BEESWAX WANTED

**HONEY WANTED**—All grades in sixties. Give price and description. Chester Williams, McDavid, Fla.

**WANTED**—White clover and amber extracted honey. Take all you have. State amount and price in first letter. We pay cash. Also for sale, one 1-inch stainless steel pipe coil flash heater, never used, \$500.00. Two 75-gal. honey tanks and stands, \$20.00 each. Honeymoon Products Co., 39 E. Henry, River Rouge 18, Mich.

**HONEY WANTED**—Large quantities. All grades. Cash price. Send samples. Finger Lakes Honey Coop., Groton, N. Y.

**SMARTWEED HONEY WANTED**—Also water white honey. Rocke Apiaries, Eureka, Ill.

**WANTED**—Honey, amber or light, in any amount. Send sample for prices. Holland Honey Cake Co., Holland, Mich.

**HONEY WANTED**—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, Calif.

**WANTED**—Water white clover honey, truck or car lots; also light amber. Mail sample and lowest cash price. Write Stoller Honey Farms, Latty, Ohio.

**HONEY AND BEESWAX WANTED** in trade for supplies or cash. Hodgson Bee Supplies Ltd., 565-13th Ave., New Westminster, B. C., Canada.

**WANTED**—Amber or off-grade honeys. Give price and thorough description. R. Griggs, Hancock, Iowa.

**WANTED**—Extracted honey, white or light amber, in 60's. State price in first letter. Ed. Heldt, 1004 W. Washington St., Bloomington, Illinois.

**WRITE FOR SHIPPING TAGS** and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25% by letting us work it into foundation for you. Walter T. Kelley Co., Clarkson, Kentucky.

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**HELP WANTED**—Experienced man preferred. Good position for right party. Give references. Howard Weaver, Navasota, Texas.

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**WANTED**—45-frame Simplicity extractor. John Burghardt, 1111 N. Franklin, New Ulm, Minn.

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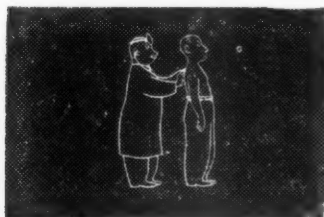
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|----------|--------|---------------------|---------------------|
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# CROPS AND MARKETS

M. G. DADANT



## Honey Movement and Prices

Reports from all sections of the country indicate that honey is still moving fairly well. Bulk white is still being offered—and purchased—at prices ranging from 11c to as high as 14½c per pound. Amber prices are generally from 10c to 11½c per pound. It is now fairly certain that the entire 1953 crop will have passed from producers' hands before the 1954 crop is harvested. Only a few scattered reports have been received from honey packers, but the few reports available indicate that packers still retain about 33% of the crop. This is not a large carry-over for this time of year and it may be expected that many of the packers will be in quite short supply by the time of the next harvest.

Retail prices on white honey vary quite widely with a low report of 26c and a high of 39c per pound. Five-pound prices range from 89c to \$1.50. There is the usual unfortunate amount of price-cutting competition, but for the most part prices are fairly uniform at 31-33c for one-pound pack and \$1.10-\$1.25 for the five-pound pack.

## Colony Number for 1954

Reporters this month were asked the following question: Do you expect an increase in colony number for 1954? The answers from all sections of the country were surprisingly uniform. The large operators do not, for the most part, expect any increase. This is brought about mainly because of the shortage of experienced help or even because of no help at all. The small and medium sized operators, on the other hand, are indicating a slight and rather general increase in colony numbers for 1954. Undoubtedly the stabilization of the market price at a high enough level to give the beekeeper some returns for his investment has had a big influence upon this decision.

## Condition of Bees and Plants

Until recently, most of the country has experienced an unusually mild winter. This has, of course,

meant plenty of cleansing flights for bees but it has also meant the consumption of more than the normal amount of winter stores. Readers are again warned to watch their colonies closely in early spring since starvation may present a problem.

Moisture conditions are quite erratic and in some areas of the country will produce quite serious honey plant shortages unless good soil-soaking precipitation is received soon. In general—the entire eastern seaboard, from the Appalachians to the ocean has had good precipitation and plants are in fine condition. The same conditions seem to extend across all of the Gulf states including, however, only the seaboard area of Texas. On the west coast, Oregon and Washington have reported excellent rains and good plant conditions. California, on the other hand, is still having entirely too much dry weather and some reporters are regarding it as seriously dry.

From western New York state to the Rocky mountains is a vast stretch of country all of which has had below normal precipitation. As reported last month, some of this area has already reported legume loss. As this is being written, however, we receive reports of a heavy snow in New York extending west to the western border of Montana.

The U.S. Weather Bureau predicts moderate precipitation in all of this area, so perhaps conditions will have changed even before this is printed.

## Canadian Reports

Reports from Canada indicate that about 25-30% of the crop still remains in producers' hands. Honey is moving from fair to well, and it is expected that most or all of the crop will have moved before the next crop is ready for harvest. As reported for this country, Canadians indicate only a very slight increase in colony numbers for 1954. In general the weather and moisture conditions have been satisfactory and

the long-range forecast would seem to indicate that Canada as a whole will fare somewhat better than this country in regard to honey plant conditions. Honey prices are holding up well, with little or no change from the report last month.

## Government Action

It is very possible that 1954 will see a serious attempt to place honey on the permissible rather than the mandatory price support. Readers should be aware of this action and the effect it could have on the rather stabilized prices we have had for the last two years. Government legislation of this type takes a considerable amount of time, and it is possible—that such legislation will not even reach the floor of the House of Representatives during this session of Congress. Should it do so, however, readers are urged to notify their congressmen of their desire to see honey kept among the list of commodities that enjoy the mandatory price support.

## Summary

Honey is still moving well with only 25% or less still in the hands of the producers. Retail prices, as well as bulk, continue to hold up well—with most bulk honey being sold above the government support level. Only small increases in colony numbers may be expected—mostly by small and medium-sized operators. Moisture conditions are quite grave over most of the central portions of the country, although recent heavy snows have alleviated this condition along the northern tier of states. Readers are warned of an attempt to place honey on the permissible rather than the mandatory price support. Should this attempt materialize, concerted action by beekeepers may serve to prevent the action.

**Honey Wanted—** Care and less than car. Top Prices.  
C. W. Aeppler Co., Oconomowoc, Wis.



## PANEL —

(Continued from page 50)

velopment of the package unaided up to the honeyflow (eight to twelve weeks), in about the third week after installation the colonies may be given a comb of brood (disease free) and bees from overwintered colonies. The addition of these combs of sealed brood and bees is equal to doubling the population of the original package.

When the developing colony is in need of more brood space, a second body of good sorted combs is given above the first one. Some give the second body below the first one. It is a good practice to sort all the combs for this (and for the original body) until eight fully drawn combs are available with very little drone in them. Do not use sets of combs (if it is at all possible to avoid it) that will total more than four or five square inches of drone comb.

According to Hansen, it is a good plan to conserve heat to keep the bees in one body as long as possible and keep the entrance reduced until the hive is absolutely full of bees and has no more room. Then give the second body. It is surprising how fast they fill it with brood. They usually take the whole spread of the second hive when they have gone up into the added space.

Some, like Cameron, also boost the packages with young bees from overwintered colonies by shaking the bees in front of the entrances of the package colonies so the young bees will run in and the old bees will return to their own hive. This is usually done about a week after installing and if necessary it is done again on the succeeding visit to the yard.

Since there is bound to be some variation in the development of the packages, even though conditions seem to be identical for their growth, as the flow approaches there may be a need to equalize the populations in the package colonies. Strong ones can be changed in location with weak ones or the packages can be placed in the location of strong overwintered colonies to gain adult bees.

If the colony develops with exceptional rapidity, sometimes it is a good idea to divide the brood and the food and the bees into two parts of about equal proportions. Give an additional queen to the queenless portion and screen its entrance for two days when it is left in the same

apery. Then the bees may be released and each part may then be operated as separate colonies; or they may later be set back together, giving the effect of a two-queen colony.

Swarming is not often a problem with packages particularly if they have had plenty of room for expansion and if supering is done next to the brood so that ample storage space is available at all times. In the North in the heavy honeyflow area, which may range up to 15 pounds a day for a week or so, two supers at a time are often given to a single package colony instead of one. A colony on scales, weighed daily, gives an adequate guide for the supering of the bees or when to stop supering when the flow tapers off.

Myron Frisque, in Wisconsin, has perhaps as satisfactory an individual method of handling packages as anyone we know of. His two-pound packages are installed April 3 to 10 on dark combs of honey and pollen which the previous fall had the centers extracted to leave a good supply of honey and pollen in each comb always adjacent to the brood nest.

About May 10 to 20 the bees have expanded to where they are ready for the second brood chamber which, in his case, is slipped underneath. This added brood chamber must also have a supply of honey and pollen.

Just before the flow starts, the queens are confined to the bottom brood chamber with an excluder; on top of the excluder is placed an empty super of white combs and then the second brood chamber, now packed with bees and honey, is placed above this super and, on top of that, one or two additional supers. Other supers are given as needed. This practically prevents all swarming and allows the queen to go right on laying in the brood chamber at the bottom.

Within a week after the flow is well on, most colonies are working in three and four supers above the brood chamber, one of which is, of course, the original brood chamber which is now being filled solid with honey as the brood emerges. This has a tendency to bring the bees into the supers faster and takes the real pressure off swarming. This top brood chamber (between the supers) is then later partly extracted and stored away for the packages the succeeding year.

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2-lb. with Queen ..... \$2.50  
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Queens (air mail) ..... .90  
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STARLINE HYBRIDS are selected from the standpoint of the egg laying ability of the queen. This means rapid build-up in the spring and strong colonies for the honeyflow. Our pledge is that this work will continue and that no stone will be left unturned in our attempts to improve the bees and help the beekeepers of our country.

With Little regular selected Italians or Little Starline Hybrids, in each colony in early spring, you are off to a good start on your new production year. You will get fast build-up and a heavy field force by flow time. That's the secret of profitable production. We guarantee safe arrival, health certificate, prompt service. All queens are raised under expert personal supervision. Our aim is quality not quantity.

*We produce two quality strains—*

*Dadant's Starline Hybrids and John Davis Italians.*

### PRICES (based on John Davis Italians)

|        | Queens | 2-lb. Packages | 3-lb. Packages |
|--------|--------|----------------|----------------|
| 1-24   | \$1.25 | \$3.75         | \$4.75         |
| 25-99  | 1.20   | 3.50           | 4.50           |
| 100-up | 1.15   | 3.25           | 4.25           |

For extra bees, add \$1.00 for each added pound

For Dadant Starline Hybrids add 25c per item.

**LITTLE'S APIARIES** Box 122 Shelbyville, Tennessee

## 3-Banded Italian QUEENS

Package Bees  
**SUNRISE APIARIES**  
Box 166, Petal, Miss.

## PACKAGE Bees and Queens

For Quality and Service

**C. F. Koehn & Sons**  
Glenn, Calif.

## WESTERN

### Beeswax Headquarters

Certified Beeswax Salvage Plant  
Custom Rendering  
Bleaching and Refining  
Foundation Manufacturing  
both plain and wired.

Top Cash Market for  
Your Beeswax

## MILLER'S HONEY CO.

Colton, Calif. Phone 1722

## Ask the Man Who Owns One

Ask the owner of a Johnson Dovetailing Machine what his machine means to him and you will find it means as much or more than any equipment he owns.

It has enabled him to increase to the desired number of colonies, to have all the hives and supers needed at all times and to repair and use old equipment that would otherwise be discarded.

It means security, convenience and practicality. In short, it means the difference between keeping bees and keeping bees for a profit. It means all this and much more, and at prices comparable to those in 1940. A great savings, not only for one year, but for many years to come.

Why not add your name to this list of satisfied owners?

*Write for Circular*

## CARL E. JOHNSON COMPANY

1557 Gregory Avenue  
LINCOLN PARK 25, MICHIGAN

## Sue Bee Says:



Contact us for Frames, Hive Bodies, Bottoms, Tops, Wired Foundation, Plain Foundation, Sulfathiazole, and Terramycin.

We have top quality, priced right and can give prompt shipment.

## SIOUX HONEY ASSN.

Box 1107, Sioux City, Iowa

## Caucasian Queens

|               |             |
|---------------|-------------|
| 1-11 at       | \$1.25 each |
| 12-49 at      | 1.10 each   |
| 50 or more at | 1.00 each   |

Postpaid by Air Mail.

Package bees at nominal prices.

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3129 Howe Ave. Sacramento, Calif.

## BEEES and QUEENS

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Over 30 years a shipper.

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Large Leather-Colored Three-Banded  
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Certificate with each shipment

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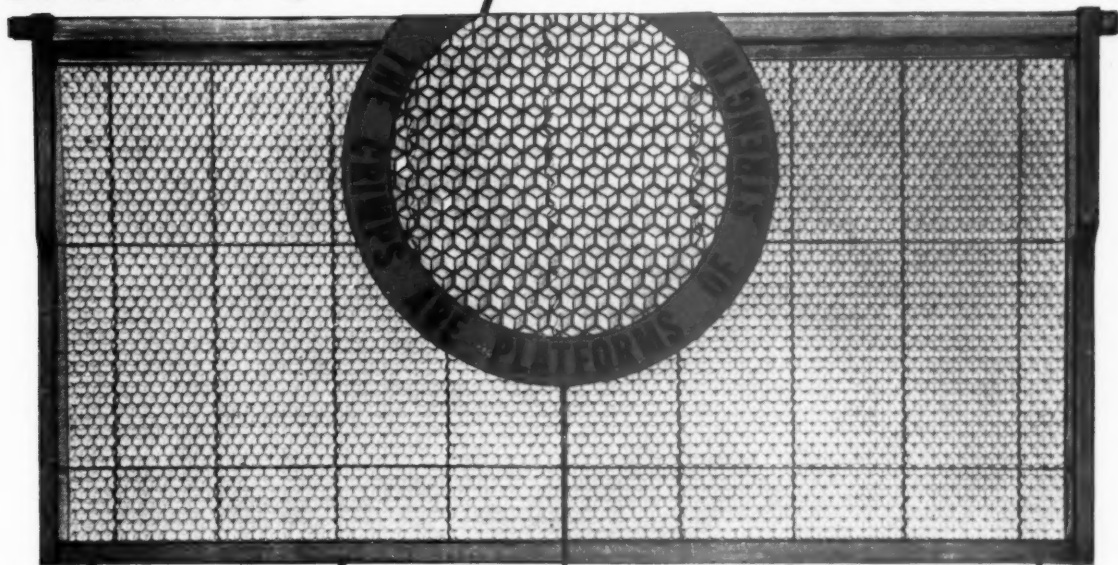
**DR. WILLIAMS APIARIES**

115 W. Sterling St. Baytown, Texas

## ITALIAN PACKAGE BEES and QUEENS

John S. Shackelford  
Rio Oso, California

# DADANT'S *Crimp-Wired* FOUNDATION



## The Choice Of Expert Beekeepers

In heat or cold the hooks will hold

The crimped wires radiate shoulders of strength

Wires of special steel for greatest support

Accurate embedding so bees use every inch

Made only from pure beeswax Retined for utmost cleanliness

Brilliant, natural color

Accepted at once by the bees

Cell walls a guide to perfect comb

Milled to exact measures

All cells just alike

Every sheet the same

Carefully and rigidly inspected

Securely and safely wrapped

## • Comb Strength in All Directions

Each crimp in each wire forms a little platform for the foundation and the comb to rest on. This support passes through every inch of the pure beeswax sheet. The smiling crinkles are really woven into the wax, each one meeting its neighbor in opposite swings to hold the wax rigid constantly. The crimps will stand heat and weight that no other type of support will give. They hold the comb firmly while it is being drawn and forever after. You can feel secure for a lifetime of use with combs drawn from Dadant's Crimp-wired Foundation.

## Gives You LIFETIME COMBS

I'm a crank about good combs. James Starkey, formerly chief inspector for Indiana, once said I had the best combs in the state. Good, all-worker brood combs are an economic necessity. They require less hive handling; give more brood room with less equipment and, with few drones, you get larger crops. The basis of a good comb is the foundation. I have tried all kinds but only Dadant's Crimp-wired Foundation meets my requirements. It is pure and perfectly milled and the crimps afford little platforms for the foundation and comb to rest on. You get beautiful combs that lessen your work and your costs.



90 YEARS of beekeeping experience - -  
75 YEARS of foundation making

**DADANT & SONS, Inc.**

Hamilton, Illinois

Lewis-Dadant Branches—Colonie and Montgomery Sts., Albany 1, N. Y.; Stephenson Ave. at 14th St., Lynchburg, Va.; 92 Riverside St., Chillicothe, Ohio; 1010 W. Austin St., Paris, Texas; Rt. 41, S., Mahira, Ga.

Dealers Everywhere



Hand dipping foundation on boards in early days. C. P. Dadant at left.

**PURE BEESWAX**—Dadant's Foundation is made of pure beeswax, just as your bees make it. So wax from your colonies is worth the highest market price and is safe for food use.

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# BIG CROPS START with a GOOD FOUNDATION and that means the



## Root Quality Foundation

When ordering YOUR spring need, specify ROOT foundation—either 3-ply wired, 3-ply regular or 3-ply wyrless.

3-ply foundation has the reinforced center. SAVES YOU MONEY by increasing worker cell area, eliminating warp, sag, or breakage in the extractor.

Write for your 1954 catalog, and learn what your local ROOT dealer can do for you.

**THE A. I. ROOT CO.**

MEDINA, OHIO

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